Atos

TEMPPO Requirement Manager
User Manual

Edition December 2012

Copyright © Atos IT Solutions and Services GmbH 2012

Microsoft, MS, MS-DOS and Windows are trademarks of Microsoft Corporation.

The reproduction, transmission, translation or exploitation of this document or its content is not permitted without express written authority. Offenders will be liable for damages. All rights reserved, including rights created by patent grant or registration of a utility model or design.

Right of technical modification reserved.

Contents

1 Introduction 5

2 Description of Use 6

2.1 Create a new Requirement Structure 6
2.2 Open an existing Requirement Structure 7
2.3 Create the Requirements 8
2.3.1 Create manually 8
2.3.2 Importing from CSV 13
2.3.2.1 Example of a CSV file 14
2.3.2.2 Possible errors during the import: 15
2.4 Edit Requirements 15
2.5 Import a whole Requirement Structure 16
2.5.1 Import from RM Tool 16
2.5.1.1 DOORS 16
2.5.1.2 Possible errors during the import 21
2.5.1.3 Requisite Pro 22
2.5.2 Import from XML 25
2.5.2.1 Possible errors during the import 26
2.5.2.1.1 Special cases 26
2.5.2.1.2 Example of an XML document 26
2.5.3 Update 28
2.5.3.1 DOORS 28
2.5.3.1.1 Example for Updating 29
2.5.3.2 RequisitePro 31
2.5.3.3 CSV 32
2.5.3.4 XML 33
2.5.3.5 Result of update 33
2.5.3.6 Apply requirement updates 33
2.5.3.7 Example: Apply requirement updates 35
2.6 Task List 37
2.7 Export to XML 38
2.8 Assign Attributes to Requirement Structures 39
2.9 Assign Requirement Structures to project 40
2.10 Link Requirements 41
2.11 Newsboard 42
2.12 Version 44
2.12.1 Merge 48
2.12.2 Delete 48
2.13 Split Requirement Structures 48
2.14 Filter 49
2.14.1 Predefined filter 49
2.14.2 Create Filter 50
2.14.3 Change Filter 52
2.14.4 Delete Filter 53
2.14.5 Select Filter 53
2.14.6 Show Filter 53
2.14.7 Define the filter criterion 54

2.14.8 Export filter ... 56
2.14.9 Import filter ... 57
2.15 Evaluation ... 57
2.15.1 Analysis ... 57
2.15.2 Progress Chart ... 59
2.15.3 Reporting ... 60
2.15.3.1 New / Edit ... 60
2.15.3.1.1 General ... 61
2.15.3.1.2 Text ... 64
2.15.3.1.3 Chart Settings ... 66
2.15.3.2 Previewing and Saving ... 66
2.15.3.3 Import from XML / TRP file ... 67
2.15.3.4 Export to XML ... 67
2.16 Multi user ability ... 67
2.16.1 Lock modes ... 67
2.16.2 Edit ... 68
2.16.2.1 Show a lock state ... 68
2.16.2.2 Change an item ... 69
2.16.2.3 Delete an item ... 70
2.16.2.4 Find invalid locks ... 70
2.16.3 Refresh ... 70
2.16.3.1 Refresh manually ... 70
2.16.3.1.1 Reloading the whole requirement structure ... 70
2.16.3.1.2 Refresh recursively ... 71
2.16.3.1.3 Refresh on certain user actions ... 71
2.17 General principles ... 72
2.17.1 Multi-selection ... 72
2.17.2 Hyperlinks and Uploads ... 74
2.17.2.1 Create hyperlinks ... 75
2.17.2.2 Edit hyperlinks ... 77
2.17.2.3 Remove hyperlinks ... 77
2.17.2.4 Download ... 78
2.17.3 Applying / Discarding ... 78
2.17.4 Find and Replace ... 79
2.17.4.1 Find ... 80
2.17.4.2 Replace ... 80
2.17.5 Settings ... 81
2.17.5.1 Global Settings ... 81
2.17.5.2 Specific Settings ... 81
2.17.5.3 Requirement Management ... 82
2.17.5.3.1 IBM Telelogic DOORS ... 82
2.17.5.3.2 IBM Rational RequisitePro ... 83
3 Literature ... 85
4 Abbreviations ... 86
5 Appendix ... 87
5.1 DTD-Schema for XML-Import (Requirement Structure) ... 87
6 Index ... 88

1 Introduction

In the specification phase the definition of requirements is fundamental for every project defining the purpose exactly, e.g. how the implemented software should work or which features should be implemented. The organization of this information mostly occurs with documents. In large projects, there is mostly more than one document which specifies requirements, because subprojects are built.

Now, the requirement environment of TEMPPO allows managing the requirements in structure(s). So a requirement structure contains requirements which can contain further requirements.

Some time requirements changes in the life cycle of the project. Requirements can be changed easily and can be saved versioned in the database.

TEMPPO Requirement Manager also provides the collaboration of TEMPPO with IBM Telelogic DOORS and IBM Rational Requisite Pro. For using the importing and updating feature the client for DOORS or RequisitePro must be installed where TEMPPO is used.

TEMPPO Requirement Manager (RM) has integrated following features:

- Editing and administrating requirements together with attributes
- Version control including baseline and view concept
- Importing and updating requirement structures from DOORS or RequisitePro to TEMPPO (see 2.5.1 ff.)
- Importing and updating requirement structures from an XML file
- Importing and updating requirement lists (CSV file)

The requirement managers have access to test management data to make statements about the actual situation of the project (progress and quality). Therefore, it’s important to assign the requirements to the test packages or test cases in order to fulfill requirement tracing.

In the TEMPPO Administrator you can assign the requirement structures to the projects and then the requirements to test packages or test cases in the TEMPPO Test Manager with a read only access.

2 Description of Use

2.1 Create a new Requirement Structure

A requirement structure is the first created element in TEMPPO Requirement Manager. You can either start by creating, importing a new requirement structure from DOORS, Requisite Pro or a XML file or opening an existing one.

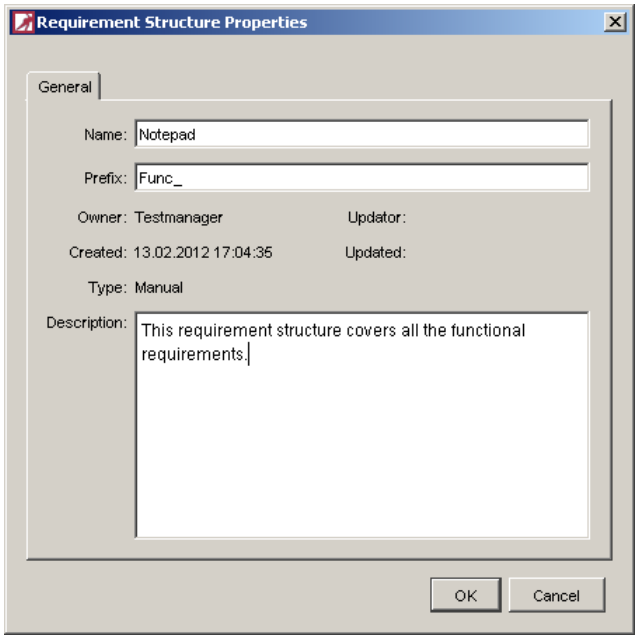


Figure 1 – Requirement Structure Properties

When activating the menu **Requirement Structure > New**, the window **Requirement Structure Properties** opens (see Figure 1). A **name**, **description**, and an optional **prefix** can be filled in and by clicking the **OK** button a new structure is displayed (see Figure 2).

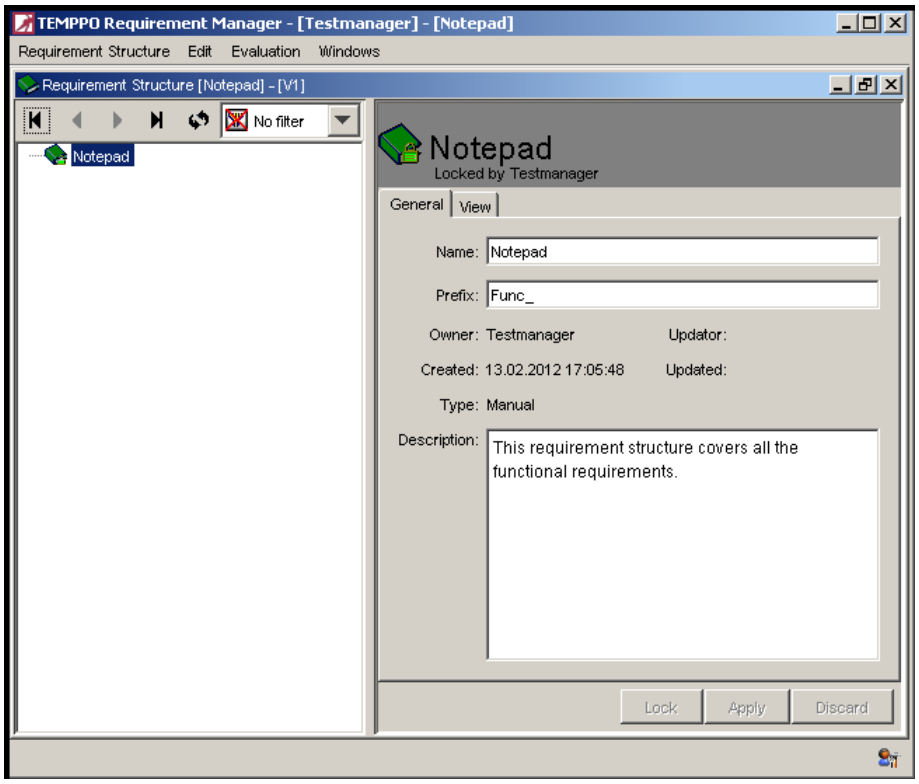


Figure 2 - Requirement Structure

After pressing OK the new requirement structure is created and you are asked if you want to assign it to a project in TEMPPO Test Manager. Please remark, that you can only link test cases to requirements of a checked in requirement structure (= baseline).

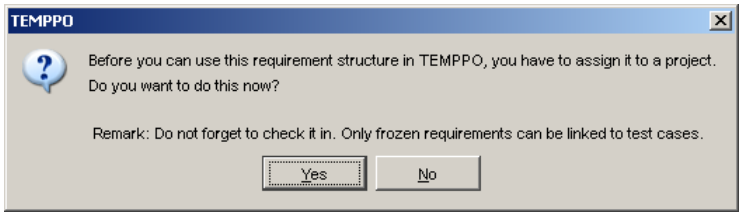

TEMPPO
Before you can use this requirement structure in TEMPPO, you have to assign it to a project.
Do you want to do this now?
Remark: Do not forget to check it in. Only frozen requirements can be linked to test cases.
Yes
No

Figure 3 - Project assign request

2.2 Open an existing Requirement Structure

When activating the menu **Requirement Structure > Open**, the window **Open Requirement Structure** with **name**, **owner**, **prefix**, **creation date** and **version** is displayed.

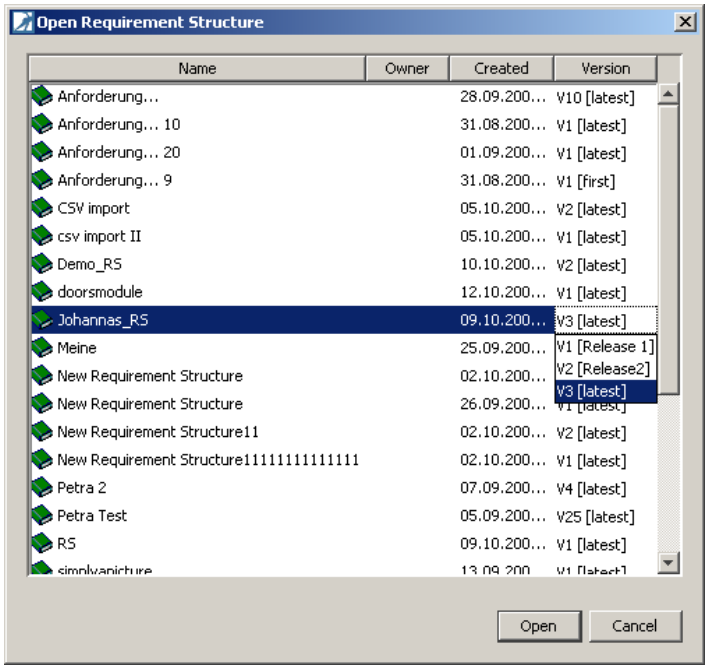


Figure 4 - Open Requirement Structure

Exactly one requirement structure can be selected and is opened by clicking the **Open** button. The name of the requirement structure is shown in the title bar of the main window.

Cancel closes the window and no requirement structure is opened.

Additionally a requirement structure version (see Figure 4) can be selected, if a non latest version should be loaded.

2.3 Create the Requirements

After creating or opening the requirement structure can be filled in the following ways:

- Build manually
- Importing from CSV

2.3.1 Create manually

The user has to create requirements manually. Each requirement can have more requirements. So you can build a clear arrangement of your requirements.

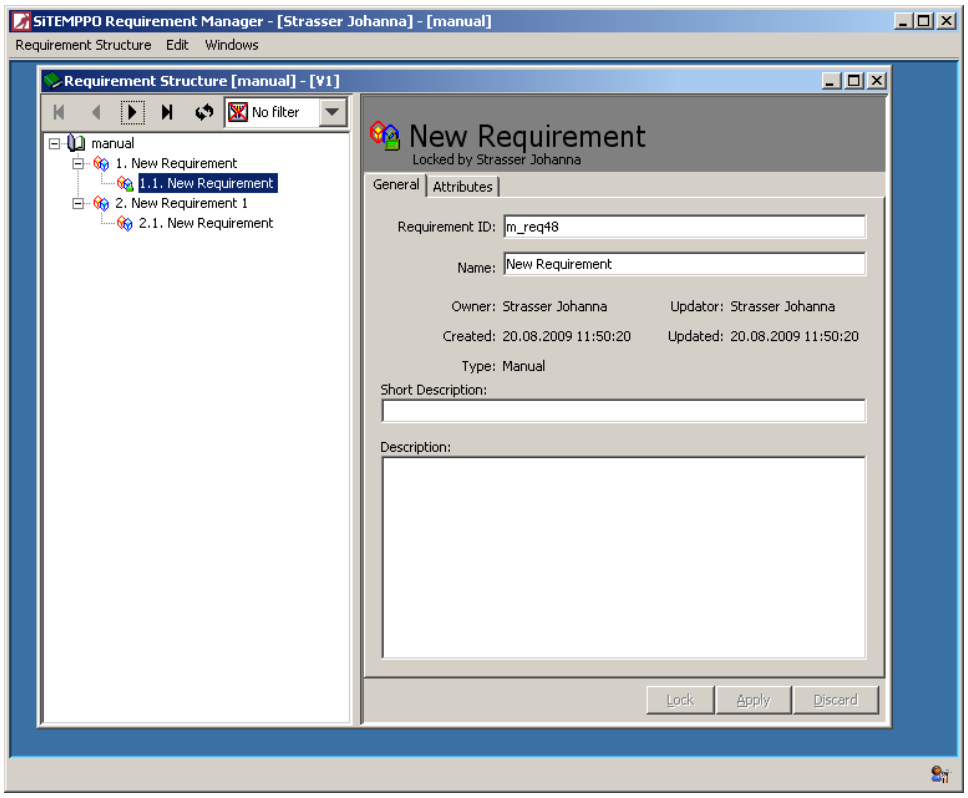


Figure 5 – Requirement (General)

With the menu item **Edit > New > Requirement**, a new requirement is created below the selected requirement structure or requirement. This menu item is enabled if a requirement structure is opened and the requirement structure or a requirement is selected.

A new child node is created below the selected one and a new name has to be entered. The default name is "**New Requirement**".

With the menu item **Edit > New > Requirement Before**, a new requirement is created before the selected requirement. This menu item is enabled if a requirement structure is opened and a requirement is selected.

A new requirement is created before the selected one and a new name has to be entered. The default name is "**New Requirement**".

- **General:**
  In the tab "**General**" you can change the requirement's id and its name. Furthermore, you can fill in a short and a long description.
- **Attributes**:
  In this tab "**Attributes**" specified in the **Meta Data Editor** can be set for requirements.

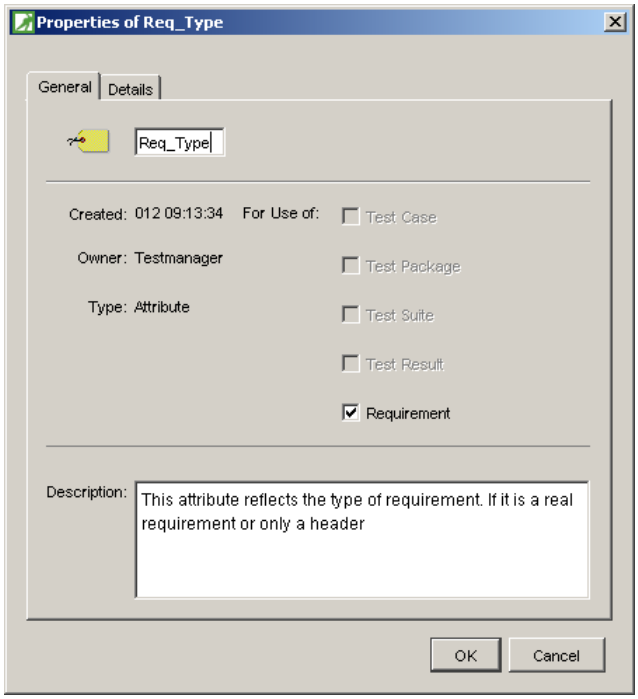


Figure 6 - Creating a requirement attribute

After clicking `OK`, the attribute is created and the user is asked, if he wants to assign it to requirement structures.

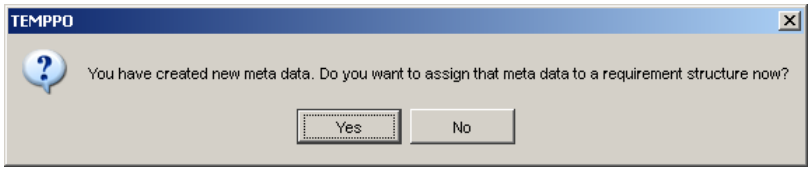


Figure 7 - Assign requirement attribute to requirement structure

After pressing `Yes`, user has to select the requirement structures where he wants to add the attribute to a requirement.

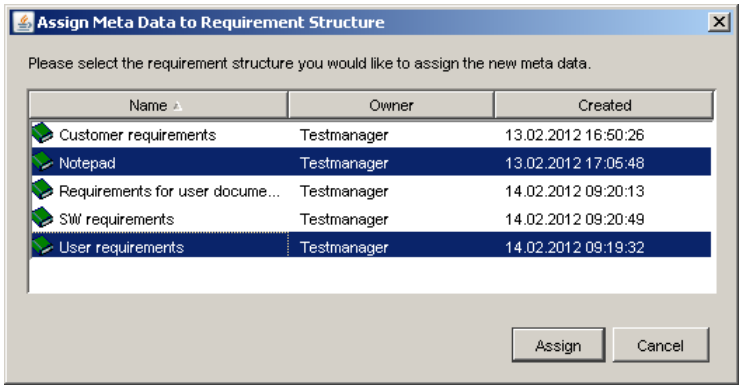


Figure 8 - Select requirement structure(s)

If a requirement is selected and tab `Attributes` is activated, you can enter `Planned coverage` for the number of test cases which have to be created in order to get a "positive" coverage. This means, that in the following example "New Requirement" has be linked to at least 3 test cases and the requirement is displayed "covered" in TEMPPO's requirement analysis.
The default value is 1.

Additionally any requirement attribute can be assigned to the requirement.

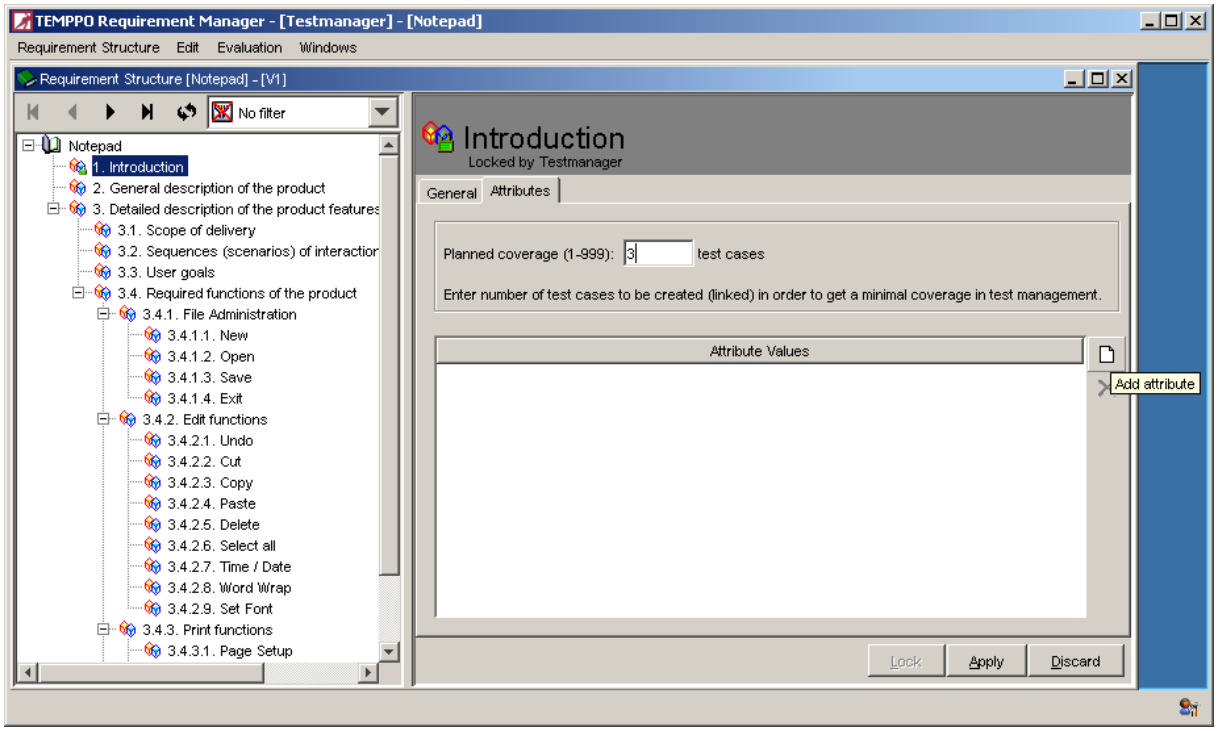


Figure 9 – Requirement (Attribute)

By specifying a sub-string in the **Find** field you can easily navigate to the attribute(s) to be related to the requirements. Multi select allows "moving" several values to the right part of the window (see Figure 10).

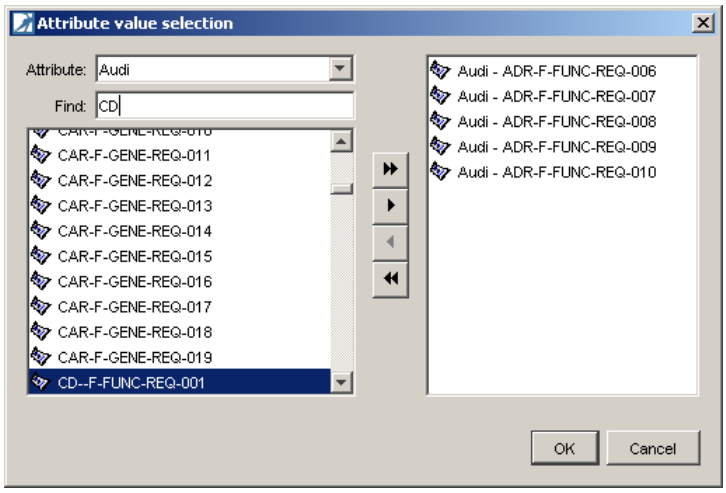


Figure 10 – Attribute value selection

When the requirement structure is imported (DOORS, Requisite Pro), attributes can't be assigned or deleted. The default plan value for **Planned Coverage** is 1 and not editable.

- **History**:
  In the tab "History" entries until the last check-in are shown.

If a requirement is selected and tab `History` is activated requirement history is shown. Only the entries until the last check-in are shown.

The tab has the following columns:

- **Date**: changed on
- **User**: changed by
- **Property**: possible values: General, UDA
- **Comment**: Comment of user. If the mandatory flag for comment is set on and requirement is saved, a history comment is popped up on apply, see Figure 12.
- **Action**: possible values: add, change, delete, merge
- **Info**: additional information for changing reason, e.g., which attribute was set.
- **Version**: of history entry. With button **Display all entries** all history entries of all requirement structure versions can be loaded

Action is depending on **Property** (possible values):

- UDA: add, delete, change
- General: change

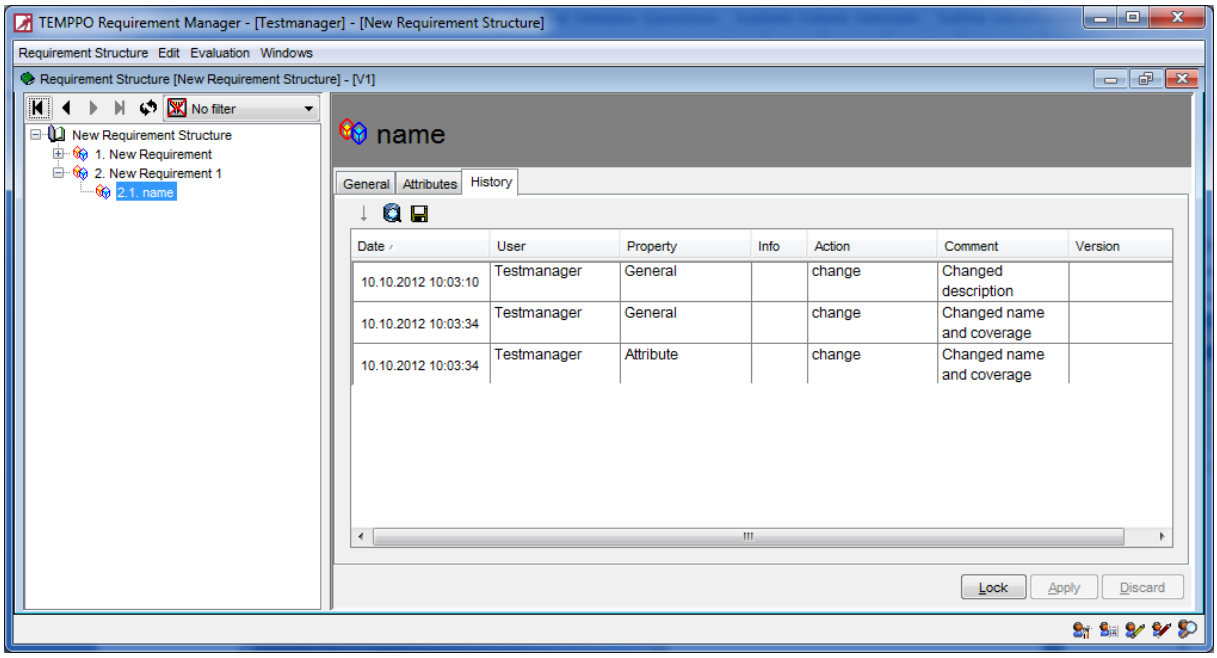


Figure 11 – History tab

Within current requirement structure version, the number of history entries loaded (x) can be configured in settings. If there are more history entries, the button **Search next** is still enabled und the next x lines can be loaded.

It also possible to view all history entries of all requirement structure versions by pressing the button **Display all entries** and save them to CSV file.

The comment can be configured to be mandatory in tab **History when requirement structure is selected**, see Figure 12. For each requirement structure this mandatory flag can be set.
If the mandatory flag is set on and requirement is saved, a history comment is popped up on apply (Figure 13).

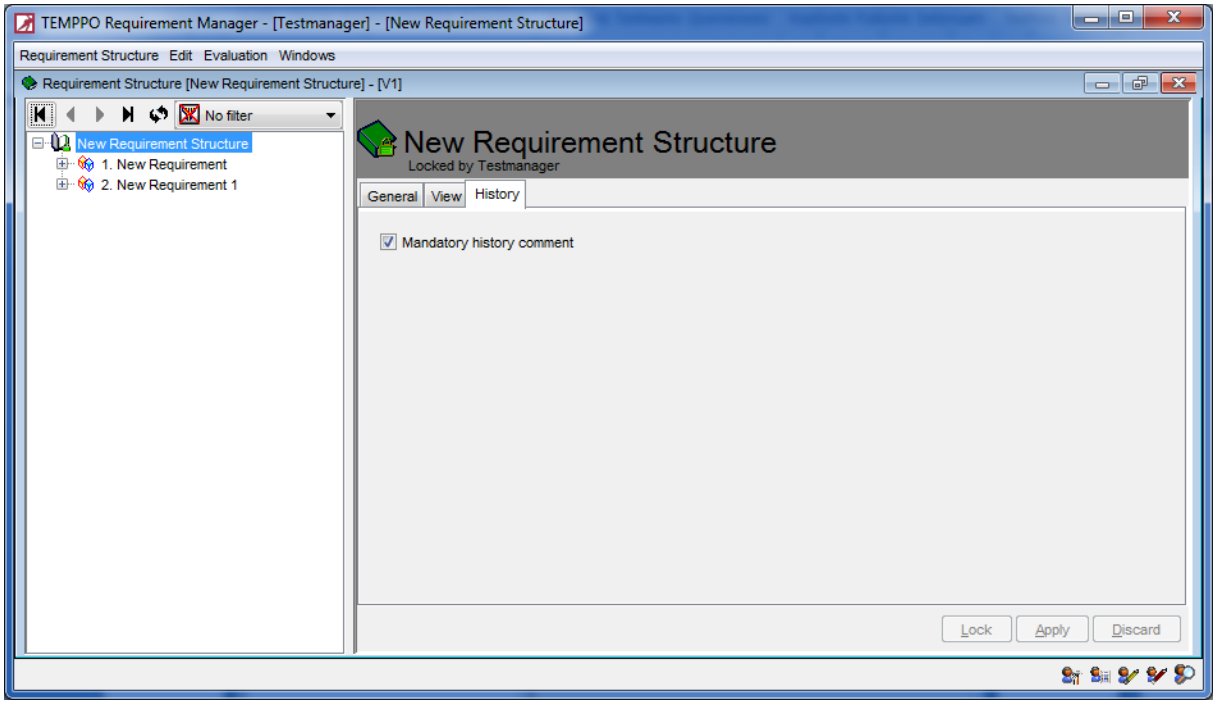

TEMPPO Requirement Manager - [Testmanager] - [New Requirement Structure]
Requirement Structure Edit Evaluation Windows
Requirement Structure [New Requirement Structure] - [V1]
No filter
New Requirement Structure
1. New Requirement
2. New Requirement 1
New Requirement Structure
Locked by Testmanager
General View History
Mandatory history comment
Lock Apply Discard

Figure 12 – Mandatory history comment

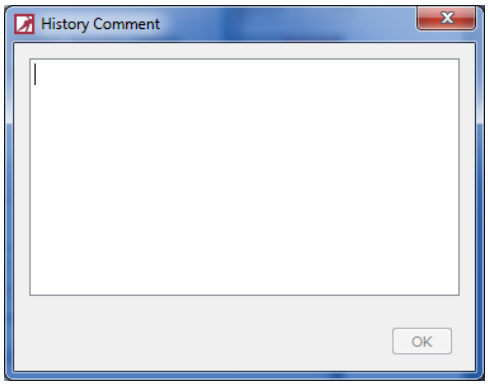


Figure 13 – History comment

2.3.2 Importing from CSV

With CSV files several requirements can be imported to a requirement structure or requirement. Depending on the selected node (requirement structure, requirement) the requirements are imported as a list of children.

The CSV file has to have 4 columns:

1. Requirement ID
2. Name
3. Description
4. Short description

Attention: The fields have to be separated with a semicolon (see 2.3.2.1).

The import of a CSV file can be started by pressing the menu item **Requirement Structure > Import > From CSV.** This menu item is only enabled when a requirement structure is opened and the requirement structure or a requirement is selected.

The file to be imported can then be chosen in a file dialog. After the file selection the progress bar for importing is shown:

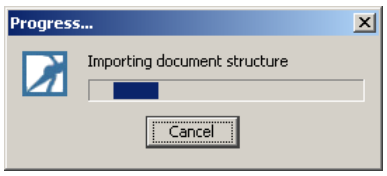


Figure 14 – Importing CSV: Progress bar

The new requirements are created as a list. Result of import:

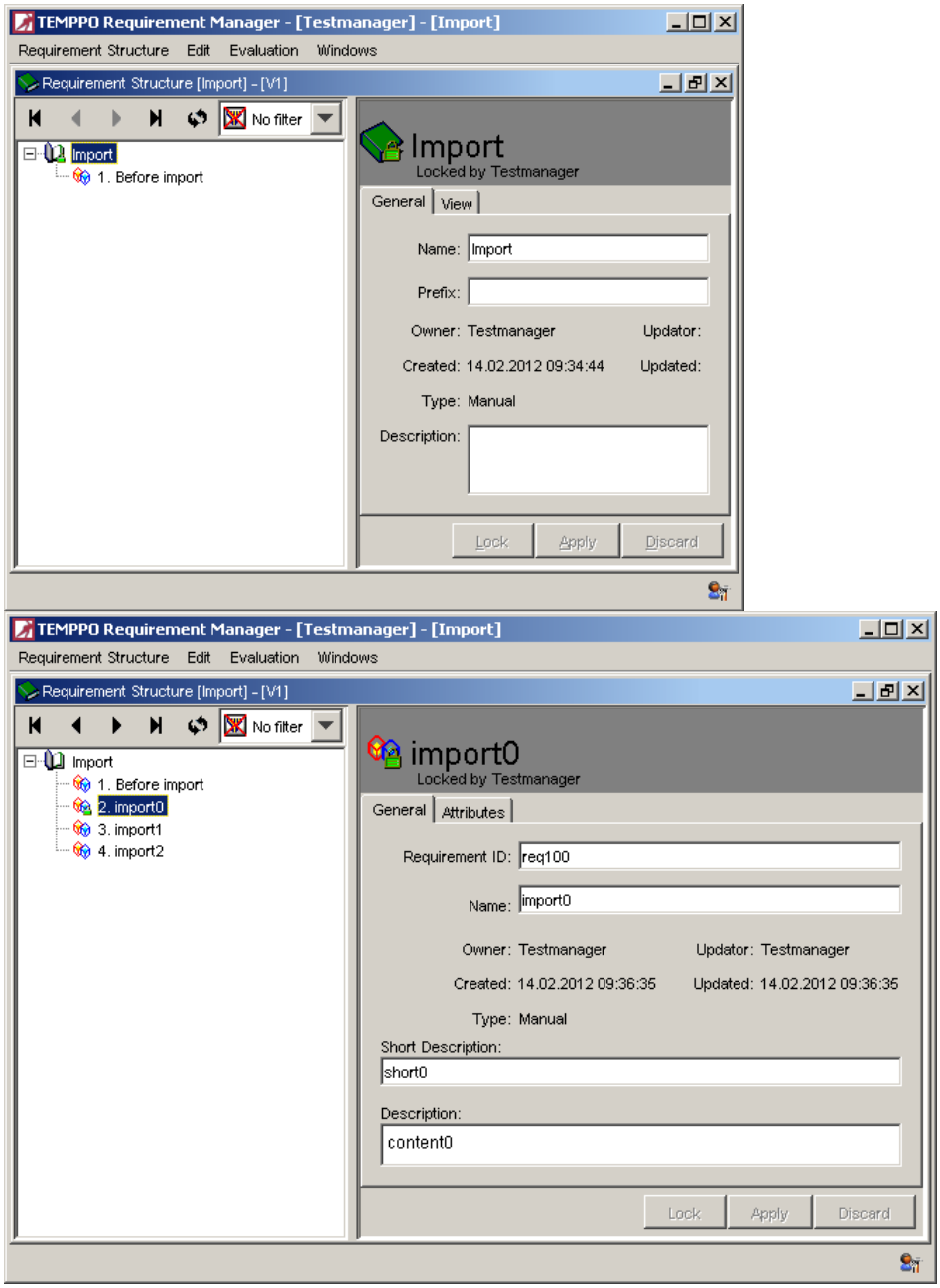


Figure 15 – Requirement Structure – before and after importing

2.3.2.1 Example of a CSV file

```
Req100; import0; content0; short0
```

Req101; import1; content1; short1 Req102; import2; content2; short2

2.3.2.2 Possible errors during the import:

Errors	Reaction
The syntax of the CSV file isn't correct.	Nothing is written to the database, a message (see Figure 6) is shown. Correct the CSV file to be imported. May there is a comma instance of a semicolon.
Duplicate "IDs"	Change "IDs"

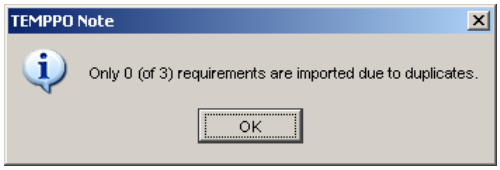


Figure 16 – Error with CSV file

2.4 Edit Requirements

Maybe the requirements changes after creation, so you can edit them, too. After automatic or manually locking the requirement (see 2.16.1, 2.16.5), you can edit the requirement ID, name, short and long description.

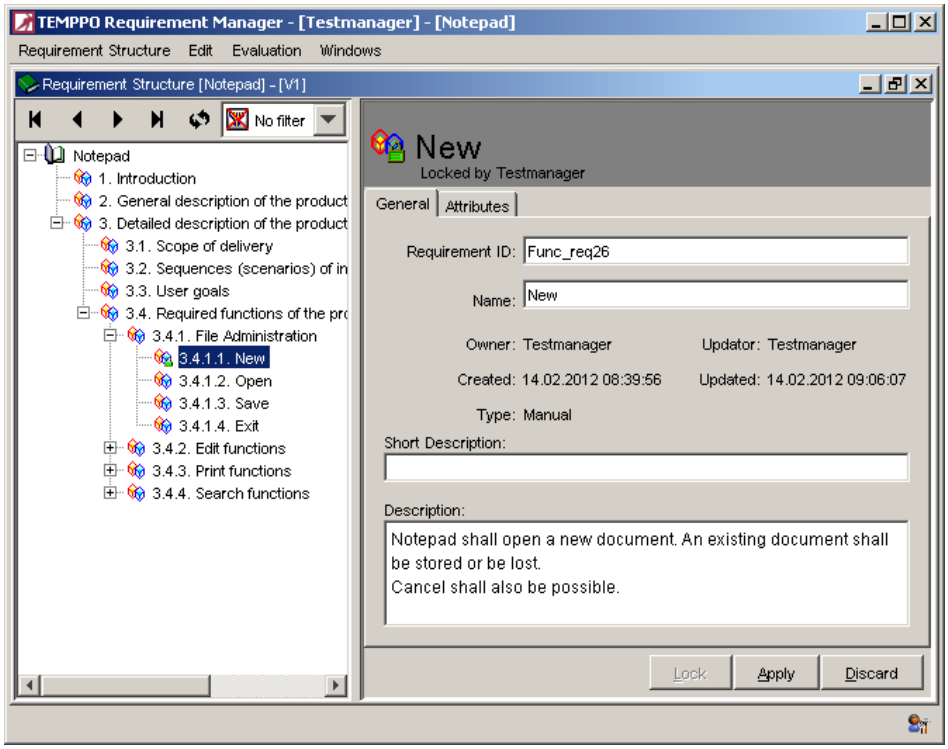


Figure 17 – Editing requirements

After editing, click the button **Apply** for saving your changes.

2.5 Import a whole Requirement Structure

TEMPPO is able to generate a whole requirement structure with requirements and its information etc. by importing.

2.5.1 Import from RM Tool

With this functionality you can import a requirement structure from a requirement management system.

2.5.1.1 DOORS

TEMPPO maintains Telelogic DOORS and thus the client for DOORS must be installed.

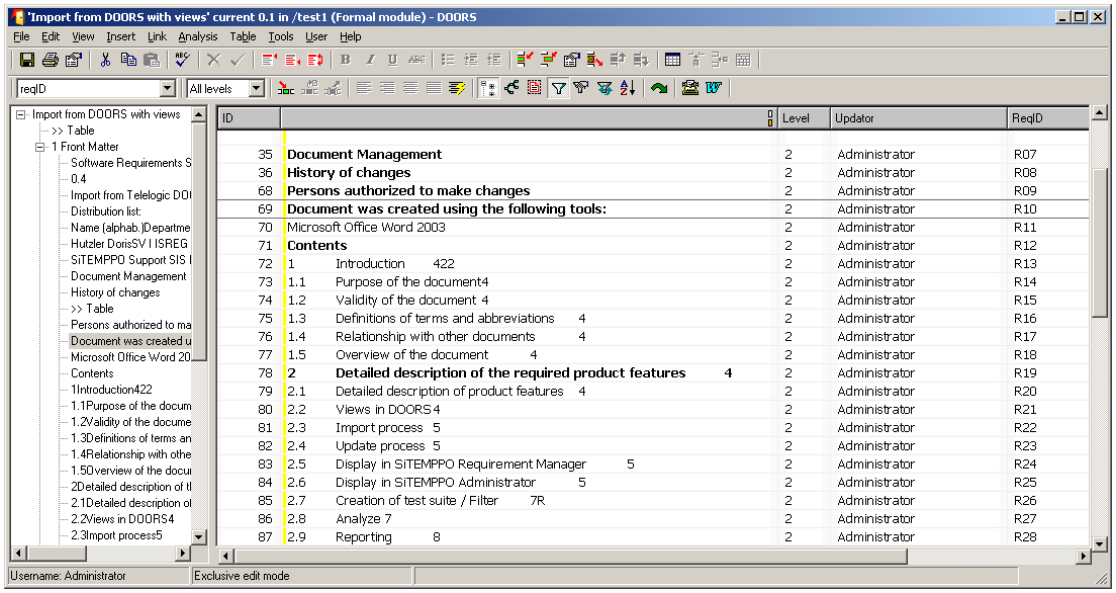

'Import from DOORS with views' current 0.1 in /test1 (Formal module) - DOORS
File Edit View Insert Link Analysis Table Tools User Help
reqID
All levels
Import from DOORS with views
>> Table
1 Front Matter
Software Requirements S
0.4
Import from Telelogic DO
Distribution list:
Name (alphab.)Departme
Hutzler DorisSV I ISREG
SiTEMPPO Support SIS I
Document Management
History of changes
>> Table
Persons authorized to ma
Document was created u
Microsoft Office Word 20
Contents
1Introduction422
1.1Purpose of the docum
1.2Validity of the docume
1.3Definitions of terms an
1.4Relationship with othe
1.5Overview of the docu
2Detailed description of t
2.1Detailed description of
2.2Views in DOORS4
2.3Import process5
ID
Level
Updator
ReqID
35 Document Management 2 Administrator R07
36 History of changes 2 Administrator R08
68 Persons authorized to make changes 2 Administrator R09
69 Document was created using the following tools: 2 Administrator R10
70 Microsoft Office Word 2003 2 Administrator R11
71 Contents 2 Administrator R12
72 1 Introduction 422 2 Administrator R13
73 1.1 Purpose of the document4 2 Administrator R14
74 1.2 Validity of the document 4 2 Administrator R15
75 1.3 Definitions of terms and abbreviations 4 2 Administrator R16
76 1.4 Relationship with other documents 4 2 Administrator R17
77 1.5 Overview of the document 4 2 Administrator R18
78 2 Detailed description of the required product features 4 2 Administrator R19
79 2.1 Detailed description of product features 4 2 Administrator R20
80 2.2 Views in DOORS 4 2 Administrator R21
81 2.3 Import process 5 2 Administrator R22
82 2.4 Update process 5 2 Administrator R23
83 2.5 Display in SiTEMPPO Requirement Manager 5 2 Administrator R24
84 2.6 Display in SiTEMPPO Administrator 5 2 Administrator R25
85 2.7 Creation of test suite / Filter 7R 2 Administrator R26
86 2.8 Analyze 7 2 Administrator R27
87 2.9 Reporting 8 2 Administrator R28
Username: Administrator
Exclusive edit mode

Figure 18 – DOORS: Requirement structure to be imported

There is an existing module in DOORS which is wanted to use in TEMPPO.

The import from DOORS can be started by pressing the menu item **Requirement Structure > Import > From RM Tool.** This menu item is only enabled when no requirement structure is open.

This will cause the wizard shown in Figure 19 to be displayed. The wizard assists you to import requirement data from an external Requirement Management Tool.

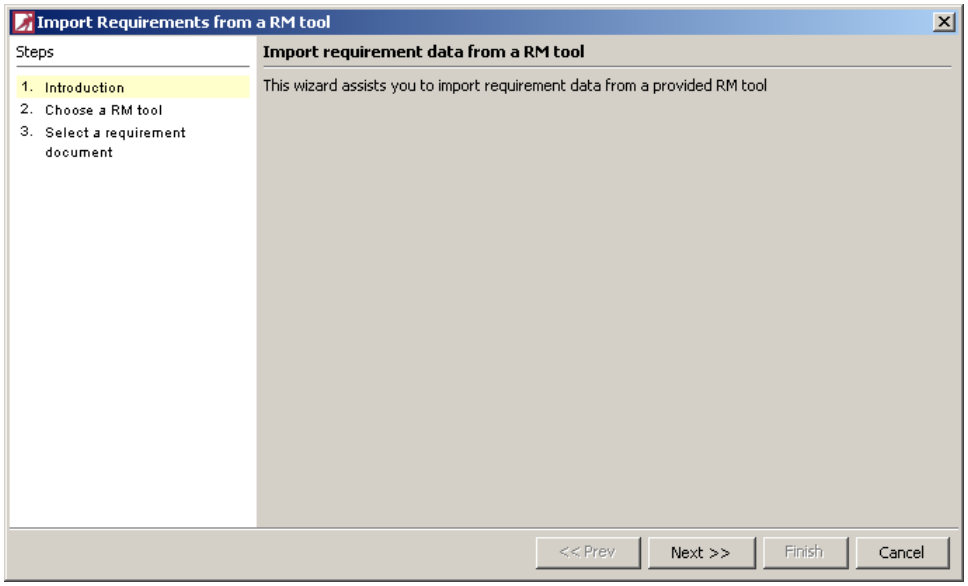

Import Requirements from a RM tool
Steps
1. Introduction
2. Choose a RM tool
3. Select a requirement document
Import requirement data from a RM tool
This wizard assists you to import requirement data from a provided RM tool
<< Prev
Next >>
Finish
Cancel

Figure 19 – Requirement import wizard: Introduction

When pressing **Next** Figure 20 is shown, in which you choose "Telelogic DOORS".

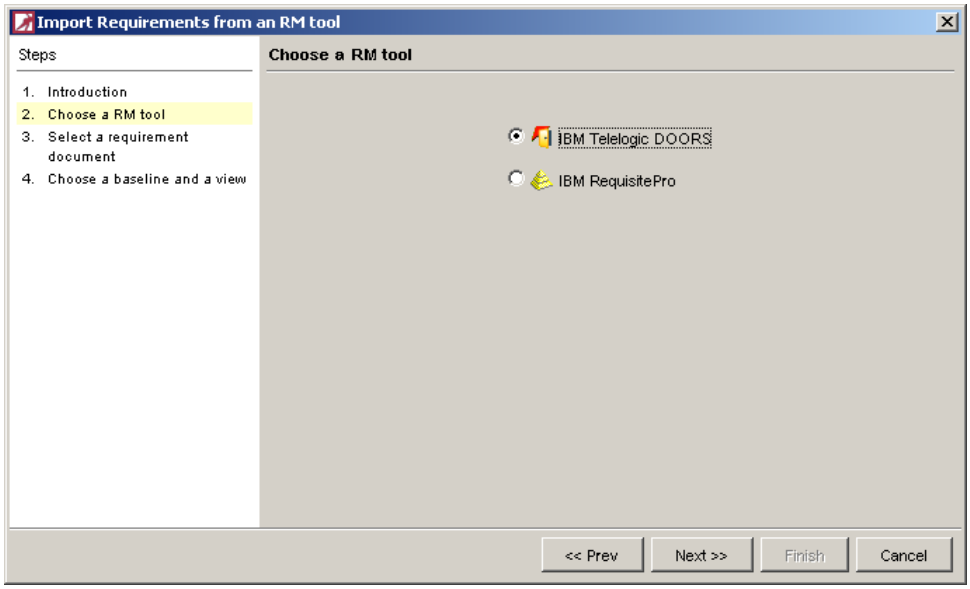


Figure 20 – Requirement import wizard: Choose a RM Tool

Then the server for DOORS starts and the following progress bar is shown (Figure 21):

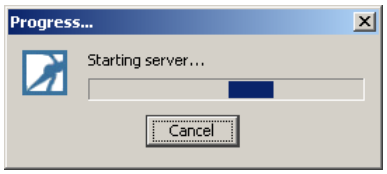


Figure 21 – Starting server...

In the next window you select a module from the tree. In the tree the projects and modules from DOORS are shown (see Figure 22).

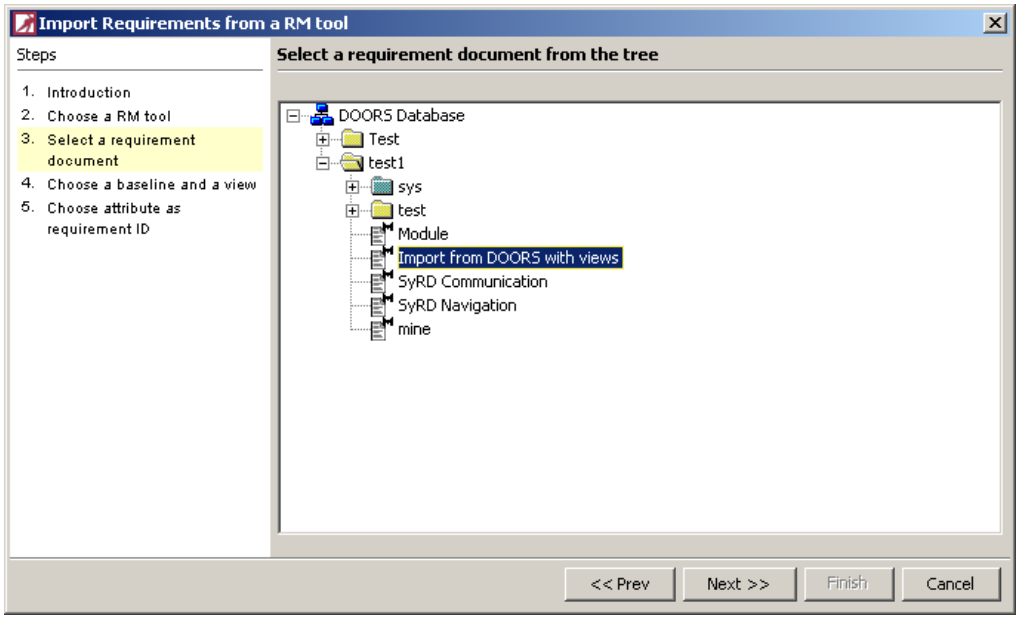


Figure 22 – Requirement import wizard: selection

After selecting a module and pressing **Next** Figure 23 is shown where the user can select a baseline or the latest version of the module. Additionally the user has to select a view.

With the view it's possible to use only a restricted number of requirements in TEMPPO, and not the whole tree from DOORS. Views also contain attributes which are imported, too (see Figure 27). With pressing **Finish** the module is imported to TEMPPO.

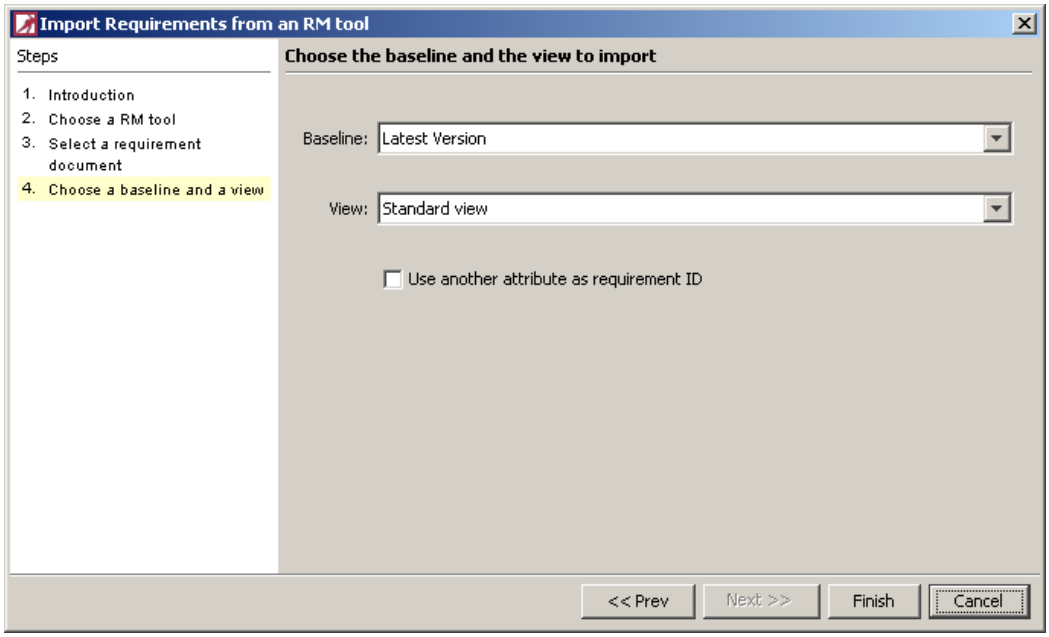


Figure 23 – Baseline and view selection – Finish

With the checkbox **Use another attribute as requirement ID** it's possible to use an attribute of the DOORS View as requirement ID. When activating this checkbox, the button **Next** is available (see Figure 24). In the next step you can select an attribute which is use as requirement ID in TEMPPO, see Figure 25.

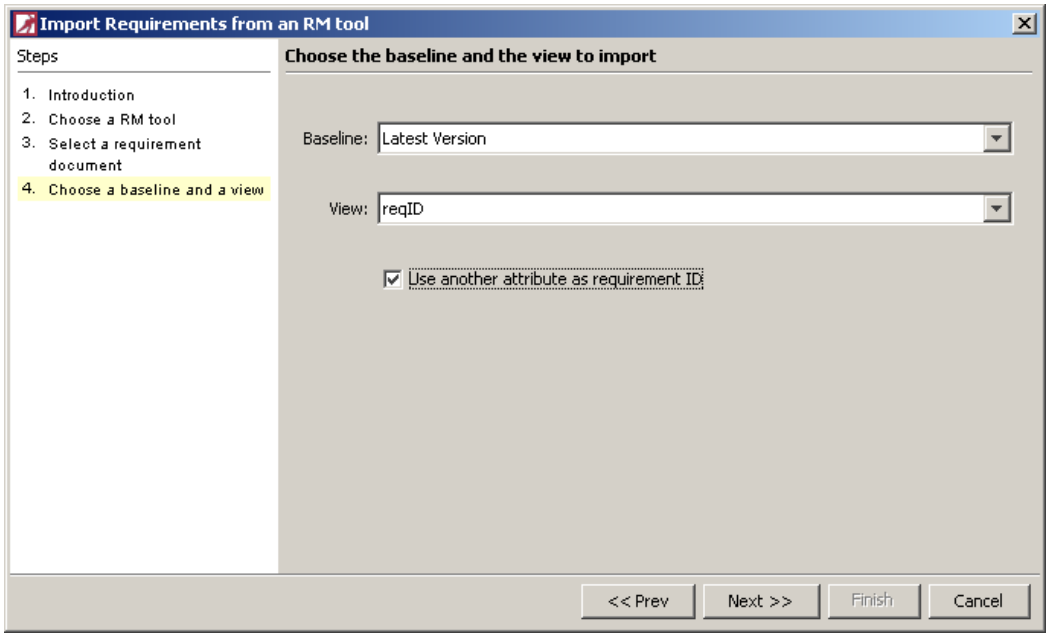


Figure 24 – Baseline and view selection - Next

In the next step you can select an attribute which is used as requirement ID in TEMPPO, see Figure 25. The attribute's name has to be unique in this DOORS module.

The value of the specified attribute is shown in TEMPPO instead of the object number (ID) in DOORS. But this object number is used as attribute. So it means that the object number and the selected attribute have exchanged their functions.

See Table 1, for effect of selecting an attribute for requirement ID.

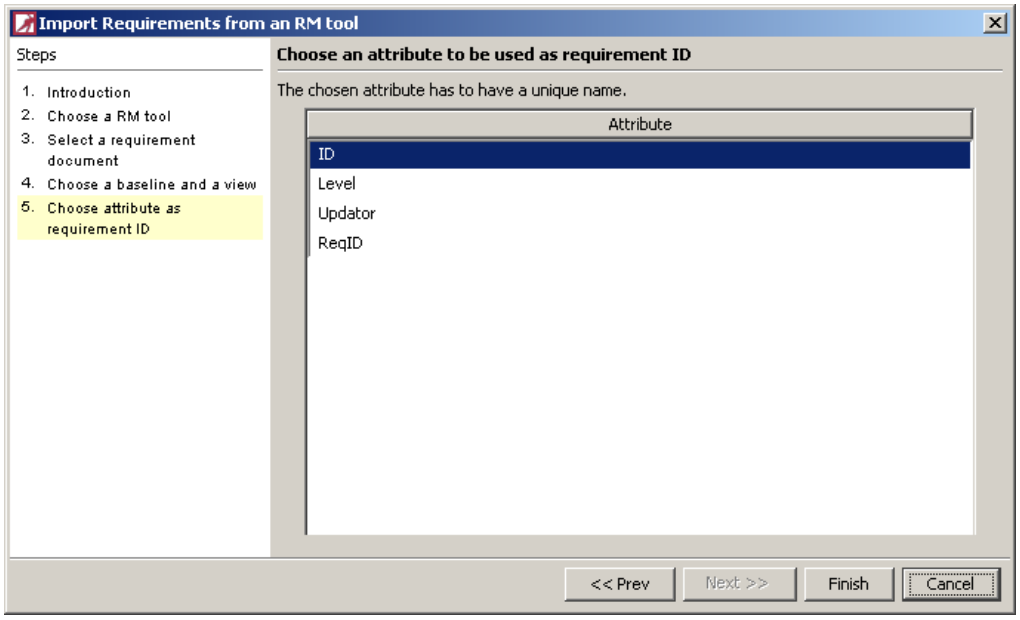


Figure 25 – Attribute selection

Columns in DOORS view	Import setting	Attributes in TEMPPO
ID (object identifier) Level	→ define no requirement	Level Updator

ReqID Updator	ID: ID (object identifier) is requirement ID	ReqID
ID (object identifier) Level ReqID Updator	→ define "ReqID" as requirement ID	Level ID Updator
Level ReqID Updator	→ define no requirement ID: ID (object identifier) is requirement ID	Level ReqID Updator
Level ReqID Updator	→ define "ReqID" as requirement ID	Level Updator

Table 1 – Attributes from DOORS to TEMPPO

After selecting the attribute which has to shown as requirement id in TEMPPO and then pressing **Finish** the requirement structure is imported.

The values of attribute which is specified as requirement id are checked if there are equal values or if there are no values. If there are such requirements, then the import is canceled and a log file is written where these cases are described (see 2.5.1.2).

When the import was successful, then the imported requirement structure and its requirements are shown in the tree:

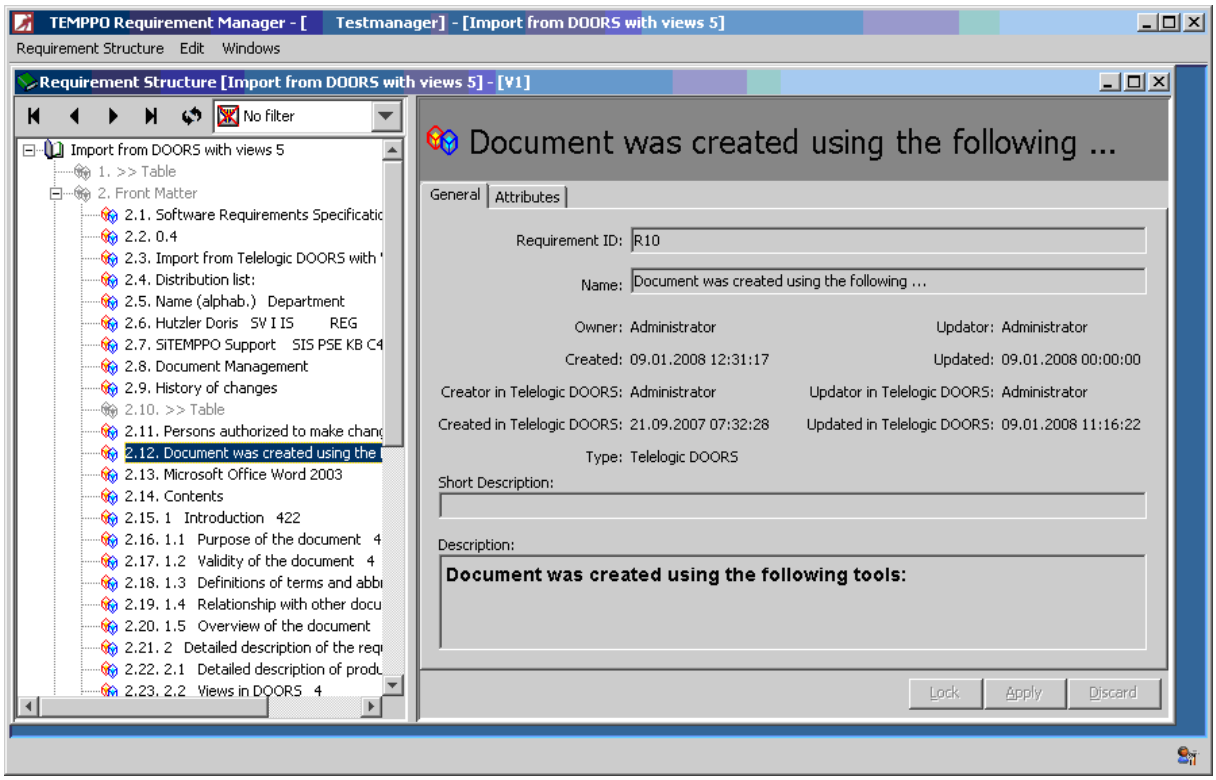

TEMPPO Requirement Manager - [Testmanager] - [Import from DOORS with views 5]
Requirement Structure Edit Windows
Requirement Structure [Import from DOORS with views 5] - [V1]
No filter
Import from DOORS with views 5
1. >> Table
2. Front Matter
2.1. Software Requirements Specificatic
2.2. 0.4
2.3. Import from Telelogic DOORS with
2.4. Distribution list:
2.5. Name (alphab.) Department
2.6. Hutzler Doris SV I IS REG
2.7. SiTEMPPO Support SIS PSE KB C4
2.8. Document Management
2.9. History of changes
2.10. >> Table
2.11. Persons authorized to make chan
2.12. Document was created using the
2.13. Microsoft Office Word 2003
2.14. Contents
2.15. 1 Introduction 422
2.16. 1.1 Purpose of the document 4
2.17. 1.2 Validity of the document 4
2.18. 1.3 Definitions of terms and abb
2.19. 1.4 Relationship with other docu
2.20. 1.5 Overview of the document
2.21. 2 Detailed description of the req
2.22. 2.1 Detailed description of produ
2.23. 2.2 Views in DOORS 4
Document was created using the following ...
General
Attributes
Requirement ID: R10
Name: Document was created using the following ...
Owner: Administrator
Updator: Administrator
Created: 09.01.2008 12:31:17
Updated: 09.01.2008 00:00:00
Creator in Telelogic DOORS: Administrator
Updator in Telelogic DOORS: Administrator
Created in Telelogic DOORS: 21.09.2007 07:32:28
Updated in Telelogic DOORS: 09.01.2008 11:16:22
Type: Telelogic DOORS
Short Description:
Description:
Document was created using the following tools:
Lock
Apply
Discard

Figure 26 – Imported requirement structure with Views

When there is an attribute specified as requirement id then the value of this attribute is shown for the ID (see also in Figure 26). This specified id is also displayed in the TEMPPO test environment.
All imported attributes are shown in tab `Attributes`, see Figure 27:

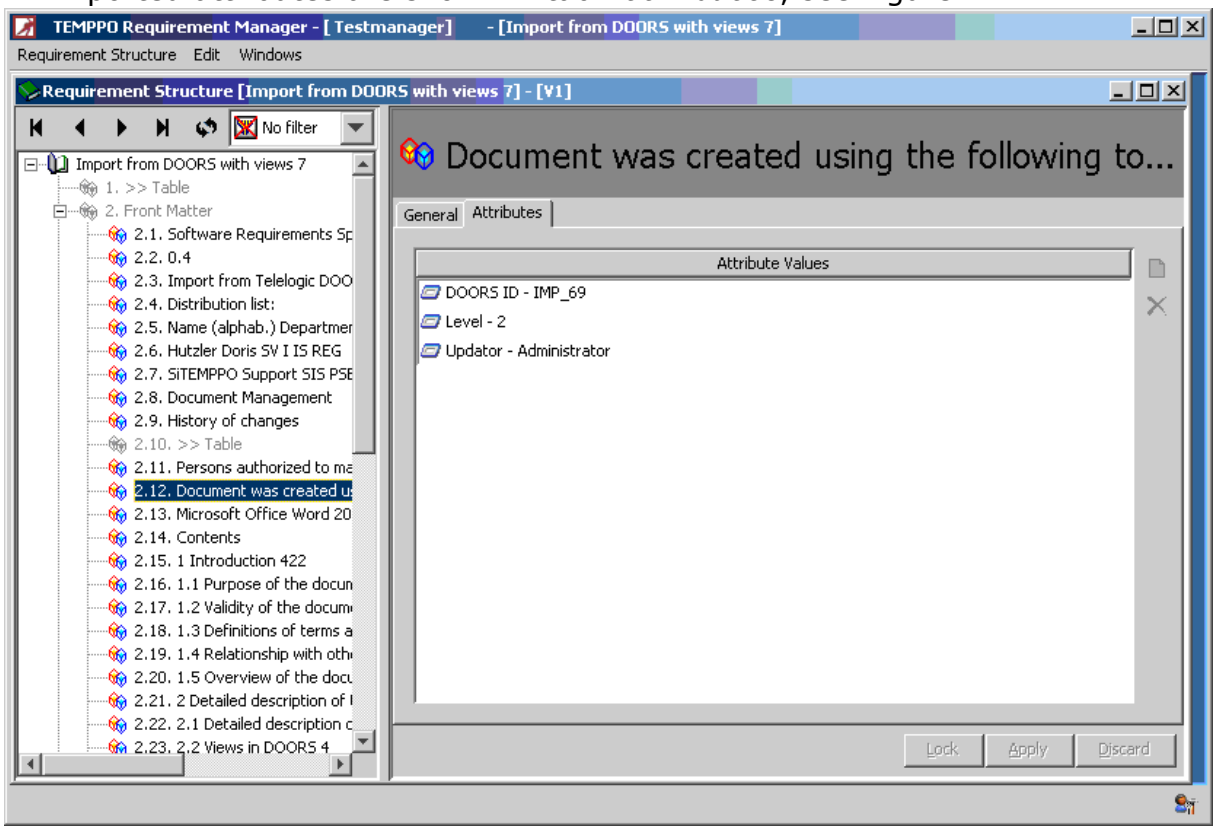

TEMPPO Requirement Manager - [Testmanager] - [Import from DOORS with views 7]
Requirement Structure Edit Windows
Requirement Structure [Import from DOORS with views 7] - [V1]
No filter
Import from DOORS with views 7
1. >> Table
2. Front Matter
2.1. Software Requirements Sp
2.2. 0.4
2.3. Import from Telelogic DOO
2.4. Distribution list:
2.5. Name (alphab.) Departmer
2.6. Hutzler Doris SV I IS REG
2.7. SiTEMPPO Support SIS PSE
2.8. Document Management
2.9. History of changes
2.10. >> Table
2.11. Persons authorized to ma
2.12. Document was created us
2.13. Microsoft Office Word 20
2.14. Contents
2.15. 1 Introduction 422
2.16. 1.1 Purpose of the docun
2.17. 1.2 Validity of the docum
2.18. 1.3 Definitions of terms a
2.19. 1.4 Relationship with oth
2.20. 1.5 Overview of the docu
2.21. 2 Detailed description of
2.22. 2.1 Detailed description c
2.23. 2.2 Views in DOORS 4
Document was created using the following to...
General Attributes
Attribute Values
DOORS ID - IMP_69
Level - 2
Updator - Administrator
Lock Apply Discard

Figure 27 – Requirement attributes

The requirements, which are not available in DOORS, are not selectable and they are displayed grayed in TEMPPO Requirement Manager.

In the TEMPPO test management environment, only selectable requirements are available for assignment to test packages or test cases. The not selectable requirements are not visible in the test management environment.

In TEMPPO only the selectable requirements can be linked to test packages or test cases.

2.5.1.2 Possible errors during the import

Errors	**Reaction**
The host for DOORS can't be found and so the connection can't be opened.	A message is shown (see Figure 28). Check if Telelogic DOORS client is installed and correct the DOORS settings in the TEMPPO Requirement Manager settings (**Windows > Settings**).
An attribute is defined as requirement id and there are equal values or no for requirement id.	A message is shown (see Figure 29). Open the file and do the changes for the requirements in DOORS which are described in the file (example see

	Figure 30) and then import again.

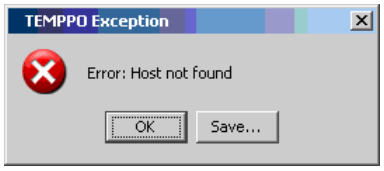


Figure 28 – Error: Host not found

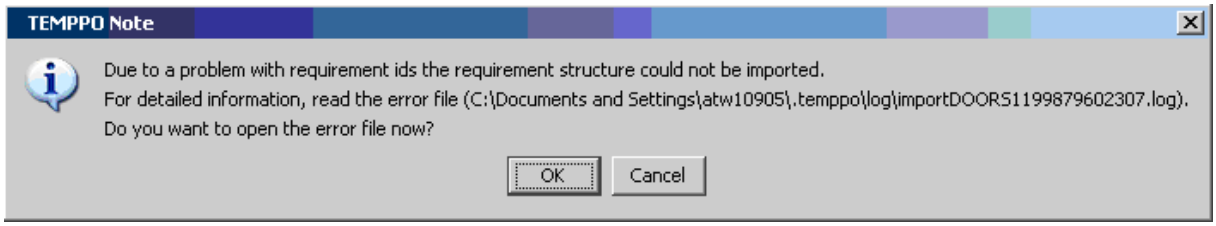

TEMPPO Note
Due to a problem with requirement ids the requirement structure could not be imported.
For detailed information, read the error file (C:\Documents and Settings\atw10905\.temppo\log\importDOORS1199879602307.log).
Do you want to open the error file now?
OK
Cancel

Figure 29 – Error with requirement ids

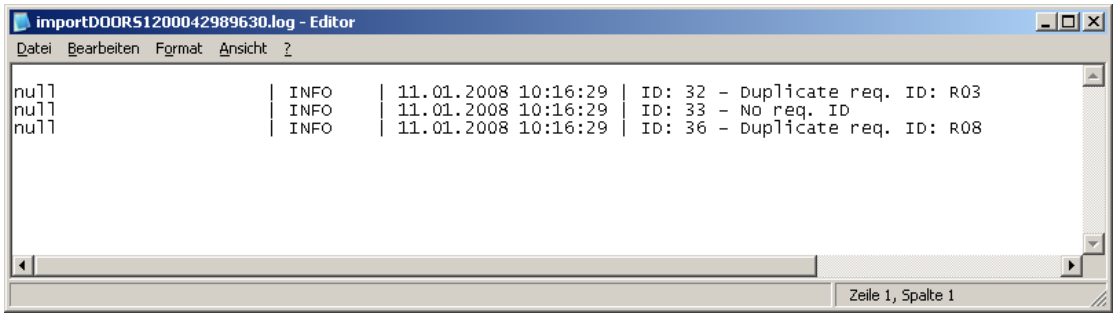

importDOORS1200042989630.log - Editor
Datei Bearbeiten Format Ansicht ?
null | INFO | 11.01.2008 10:16:29 | ID: 32 - Duplicate req. ID: R03
null | INFO | 11.01.2008 10:16:29 | ID: 33 - No req. ID
null | INFO | 11.01.2008 10:16:29 | ID: 36 - Duplicate req. ID: R08
Zeile 1, Spalte 1

Figure 30 – Error text file

2.5.1.3 Requisite Pro

The RequisitePro client must be installed.

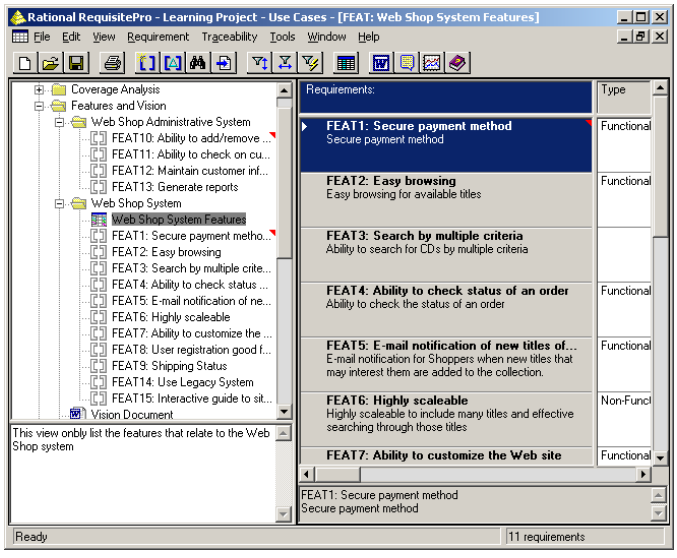

Rational RequisitePro - Learning Project - Use Cases - [FEAT: Web Shop System Features]
File Edit View Requirement Traceability Tools Window Help
Coverage Analysis
Features and Vision
Web Shop Administrative System
FEAT10: Ability to add/remove ...
FEAT11: Ability to check on cu...
FEAT12: Maintain customer inf...
FEAT13: Generate reports
Web Shop System
Web Shop System Features
FEAT1: Secure payment metho...
FEAT2: Easy browsing
FEAT3: Search by multiple crite...
FEAT4: Ability to check status ...
FEAT5: E-mail notification of ne...
FEAT6: Highly scaleable
FEAT7: Ability to customize the ...
FEAT8: User registration good f...
FEAT9: Shipping Status
FEAT14: Use Legacy System
FEAT15: Interactive guide to sit...
Vision Document
This view onbly list the features that relate to the Web Shop system
Requirements:
Type
FEAT1: Secure payment method
Secure payment method
Functional
FEAT2: Easy browsing
Easy browsing for available titles
Functional
FEAT3: Search by multiple criteria
Ability to search for CDs by multiple criteria
FEAT4: Ability to check status of an order
Ability to check the status of an order
Functional
FEAT5: E-mail notification of new titles of...
E-mail notification for Shoppers when new titles that may interest them are added to the collection.
Functional
FEAT6: Highly scaleable
Highly scaleable to include many titles and effective searching through those titles
Non-Funct
FEAT7: Ability to customize the Web site
Functional
FEAT1: Secure payment method
Secure payment method
Ready
11 requirements

Figure 31 – RequisitePro project

There is an existing project in RequisitePro which is wanted to use in TEMPPO.

The import from RequisitePro can be started by pressing the menu item **Requirement Structure > Import > From RM Tool.** This menu item is only enabled when no requirement structure is open.

This will cause the wizard shown in Figure 32 to be displayed. The wizard assists you to import requirement data from an external Requirement Management Tool.

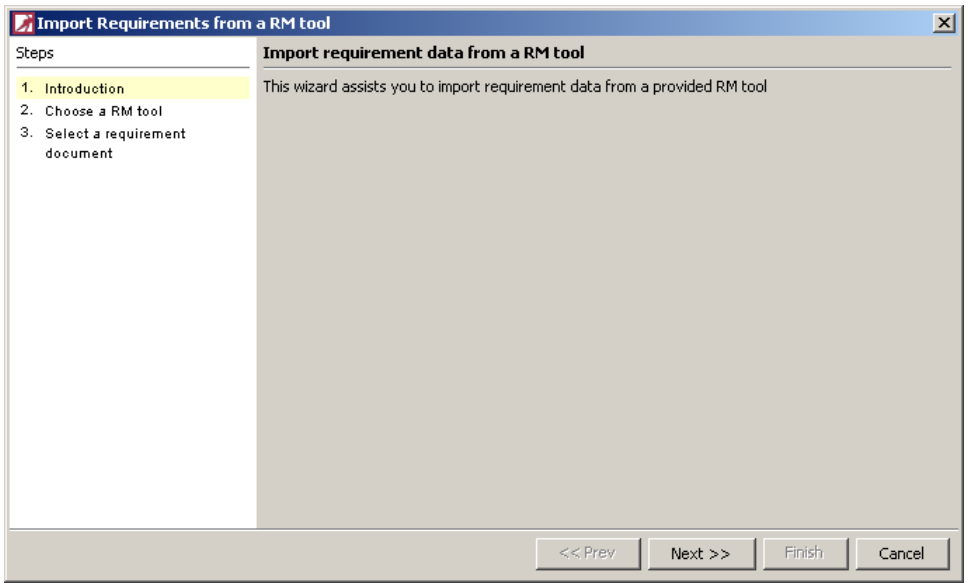

Import Requirements from a RM tool
Steps
1. Introduction
2. Choose a RM tool
3. Select a requirement document
Import requirement data from a RM tool
This wizard assists you to import requirement data from a provided RM tool
<< Prev
Next >>
Finish
Cancel

Figure 32 – Requirement import wizard: Introduction

When pressing **Next** Figure 33 is shown, in which you choose "IBM RequisitePro" is possible.

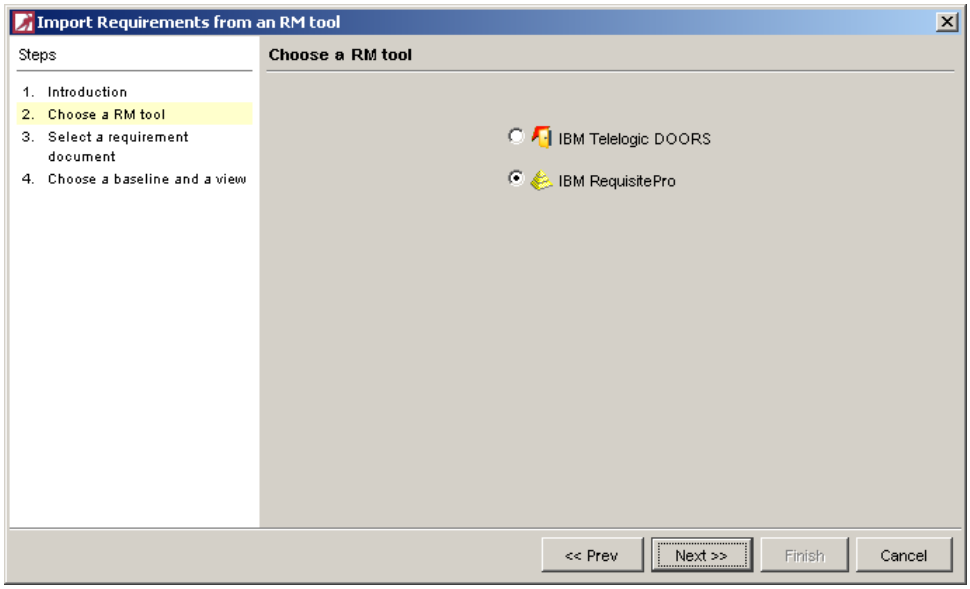


Figure 33 – Requirement import wizard: Choose a RM Tool

If you press **Next** the projects are read from the local registry (Figure 34).

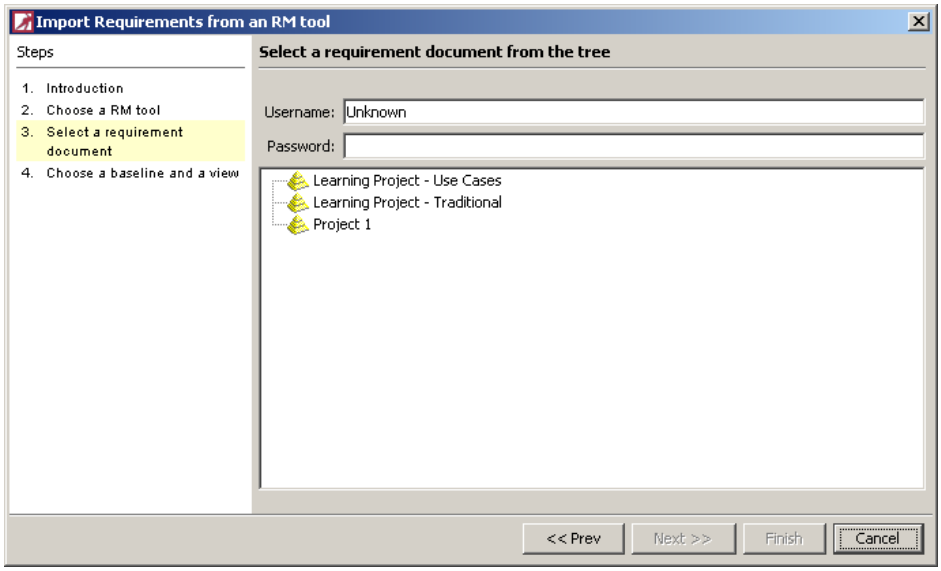


Figure 34 – Requirement import wizard: project selection

If you select a project, enter a valid account and password and press **Next,** Figure 35 is shown where the available views are displayed.

With the view it's possible to use only a restricted number of requirements in TEMPPO, and not the whole tree from RequisitePro. Views also contain attributes which are imported, too (see Figure 35).

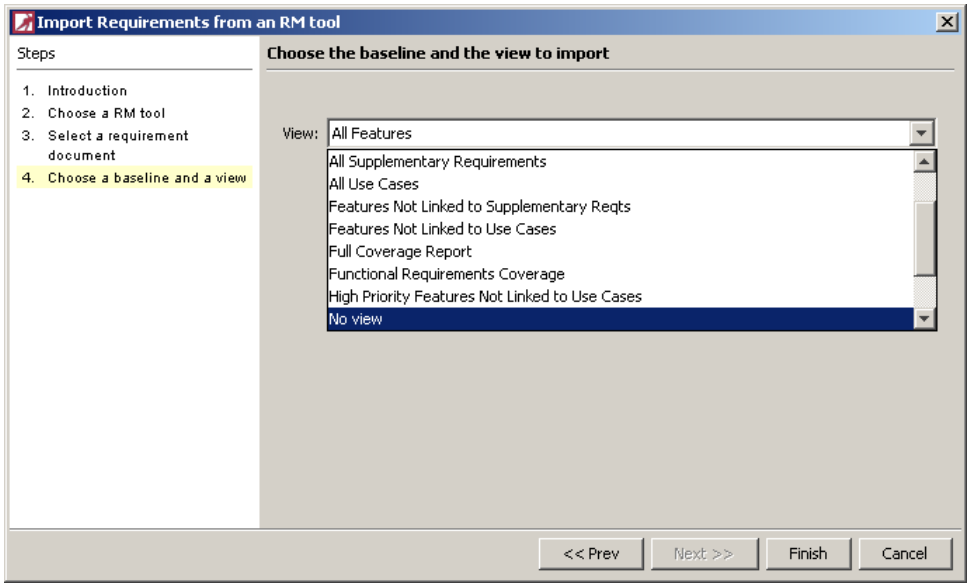


Figure 35 – View selection – Finish

With pressing `Finish` the project is imported to TEMPPO.

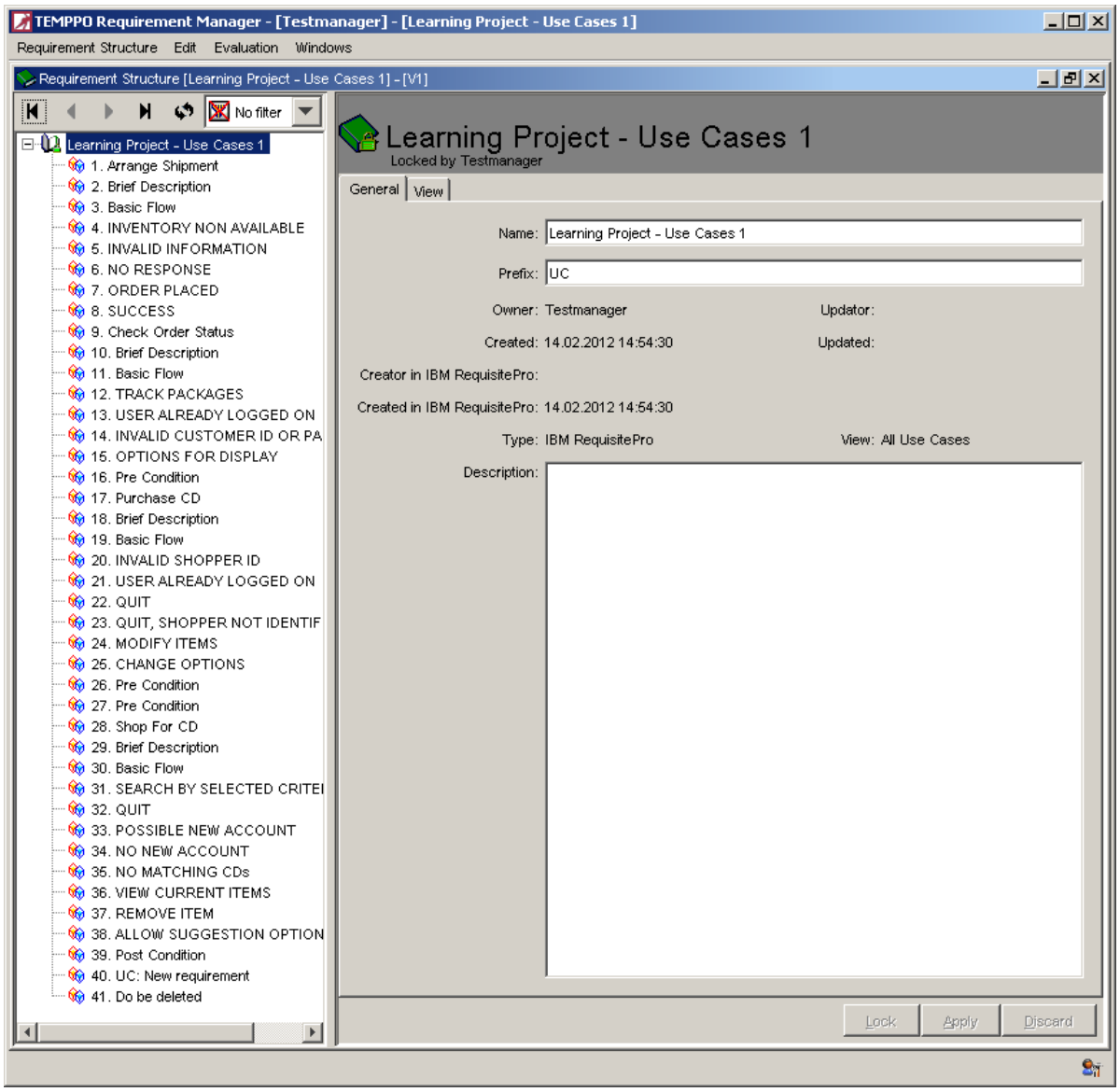


Figure 36 - Imported Requirement Structure

2.5.2 Import from XML

The XML-Import can be started by pressing the menu item **Requirement Structure > Import > From XML.** This menu item is only enabled when no requirement structure is open.

The XML-document to be imported can then be chosen in a file dialog. The XML document is checked against the DTD (Document Type Definition). Your XML file has to have the first line

<!DOCTYPE TEMPPO_EXCHANGE SYSTEM "requstructure.dtd" > whereas requstructure.dtd is the DTD file. Otherwise the import will fail.

In your TEMPPO directory you'll find the DTD (requstructure.dtd).

Stages of Import:

1. Parsing and validation of XML-file, checking of semantics and creation of new objects
2. Saving new objects to the database
3. Reloading of the whole requirement structure from database

When the import of a manual requirement structure is finished, you will be asked, whether you want to check in the requirement structure immediately. This is necessary, if you plan to import a test structure afterwards, which contains requirements of the just imported structure.

At last the following information dialog is displayed:

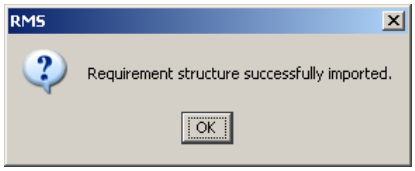


Figure 37 – Import successful

2.5.2.1 Possible errors during the import

Errors	Reaction
XML file doesn't match DTD schema.	Nothing is written to the database, a error message is shown. Correct the file.

2.5.2.1.1 Special cases

Special cases	Reaction
Name of requirement structure exists.	Unique name is generated like "_1", "_2". Message is shown, see Figure 38
Requirement structure or requirement doesn't exist.	Object is created. No message is shown.

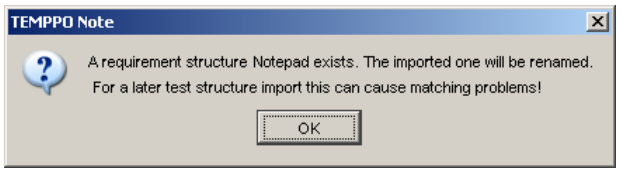

TEMPPO Note
A requirement structure Notepad exists. The imported one will be renamed.
For a later test structure import this can cause matching problems!
OK

Figure 38 – name of requirement structure already exists

2.5.2.1.2 Example of an XML document

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE TEMPPO_EXCHANGE SYSTEM "requstructure.dtd">
<?TEMPPO_VERSION "V6.0 Build 05"?>
<TEMPPO_EXCHANGE>
       <RS
          name="Benutzerhandbuch"
          version="V3"
          rmstype="Manual"
          prefix="prefix"
          createdrms="21.12.2009 15:00:39"
       >
              <DESCRIPTION>
              </DESCRIPTION>
              <REQUIREMENT
                 name="import XML renamed"
                 requirementnumber="import3"
```

```
                type="Manual"
                shortdescription="Inhalt Kurzbeschreibun"
                createdrms=""
                updatedrms=""
                selectable="0"
                coveredbytcs="3"
            >
                <DESCRIPTION>
                <![CDATA[<html><body><p style="margin:0;">Ge&#228;nderte
Beschreibung mit <a
href="http://www.siemens.at/TEMPPO">Hyperlink</a></p></body></html>]]>
                </DESCRIPTION>
                <REQUIREMENT
                   name="New Requirement ADDED"
                   requirementnumber="req41017"
                   type="Manual"
                   shortdescription=""
                   createdrms=""
                   updatedrms=""
                   selectable="0"
                   coveredbytcs="1"
                >
                       <DESCRIPTION>
                       </DESCRIPTION>
                       <USER_DEFINED_ATTRIBUTE
                          name="Requirment attribute"
                          value="high"
                          type="32"
                       />
                </REQUIREMENT>
                <REQUIREMENT
                   name="New Requirementxcvxcv"
                   requirementnumber="req41019"
                   type="Manual"
                   shortdescription=""
                   createdrms=""
                   updatedrms=""
                   selectable="0"
                   coveredbytcs="1"
                >
                       <DESCRIPTION>
                       <![CDATA[]]>
                       </DESCRIPTION>
                       <REQUIREMENT
                          name="New Requirement"
                          requirementnumber="req41020"
                          type="Manual"
                          shortdescription=""
                          createdrms=""
                          updatedrms=""
                          selectable="0"
                          coveredbytcs="1"
                       >
                              <DESCRIPTION>
```

```
                                    <![CDATA[]]>
                                    </DESCRIPTION>
                                </REQUIREMENT>
                        </REQUIREMENT>
                </REQUIREMENT>
                <REQUIREMENT
                   name="import XML 2"
                   requirementnumber="import32"
                   type="Manual"
                   shortdescription=""
                   createdrms=""
                   updatedrms=""
                   selectable="0"
                   coveredbytcs="5"
                >
                        <DESCRIPTION>
                        <![CDATA[<html><head></head><body><p>import from XML
file2 </p></body></html>]]>
                        </DESCRIPTION>
                        <USER_DEFINED_ATTRIBUTE
                           name="Requirment attribute"
                           value="high"
                           type="32"
                        />
                </REQUIREMENT>
        </RS>
</TEMPPO_EXCHANGE>
```

2.5.3 Update

With this feature you can update requirement structures imported from

- DOORS
- Requisite Pro
- XML
- CSV

There is a feature for undo a faulty update. On the one hand you can merge any version to latest one in case of a manual requirement structure (see chapter 2.12). On the other hand you can delete the latest requirement structure version if it is not used yet in test management in case of imported requirement structures from 3rd party products (see chapter 2.12).

2.5.3.1 DOORS

In TEMPPO Requirement Manager data imported from DOORS cannot be updated by a TEMPPO user. DOORS requirements can be updated in DOORS and imported in TEMPPO or changed in latest. The update function is the same as in 2.5.1.3. This function checks in the actual latest version (see also 2.11) and updates the new latest version of the requirement structure, irrespective of the activated version.

By pressing the menu item **Requirement Structure > Update** the requirement update process starts, see chapter 2.5.1. The menu item is enabled when a requirement structure is opened and this requirement structure has the type for the RM tool "Telelogic DOORS", not "Manual".

There is no preview or undo functionality when the wrong requirement structure is selected, but the latest version is checked in before updating. No changes are lost.

2.5.3.1.1 Example for Updating

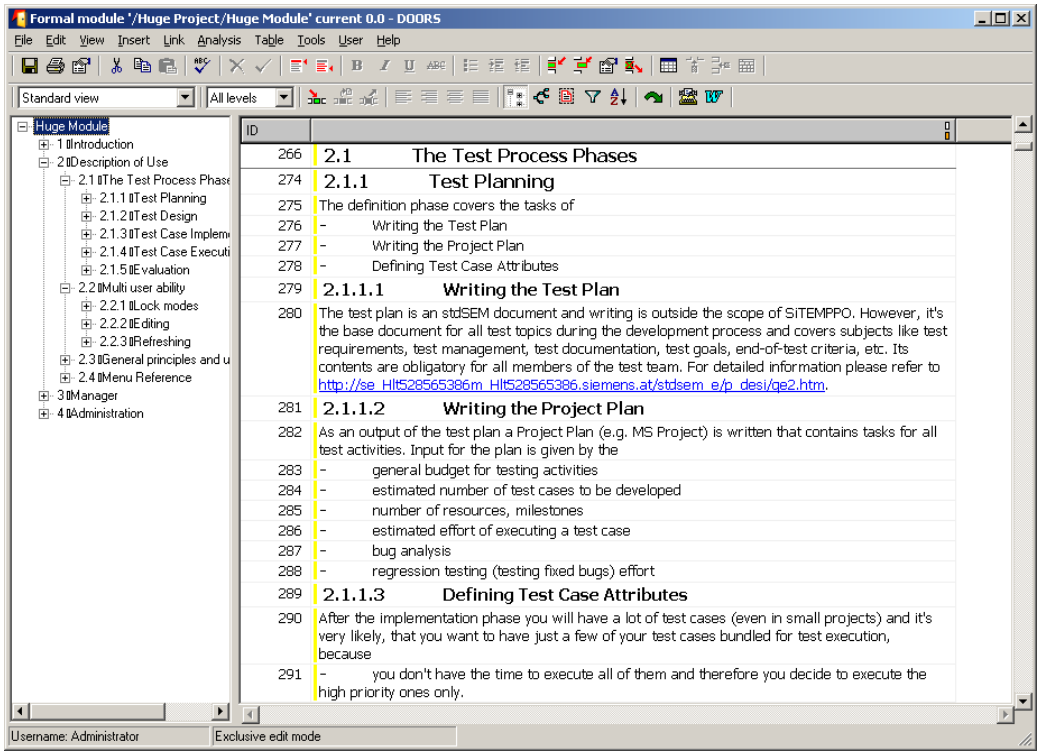

Formal module '/Huge Project/Huge Module' current 0.0 - DOORS
File Edit View Insert Link Analysis Table Tools User Help
Standard view
All levels
Huge Module
1 Introduction
2 Description of Use
2.1 The Test Process Phase
2.1.1 Test Planning
2.1.2 Test Design
2.1.3 Test Case Implem
2.1.4 Test Case Executi
2.1.5 Evaluation
2.2 Multi user ability
2.2.1 Lock modes
2.2.2 Editing
2.2.3 Refreshing
2.3 General principles and u
2.4 Menu Reference
3 Manager
4 Administration
ID
266 2.1 The Test Process Phases
274 2.1.1 Test Planning
275 The definition phase covers the tasks of
276 - Writing the Test Plan
277 - Writing the Project Plan
278 - Defining Test Case Attributes
279 2.1.1.1 Writing the Test Plan
280 The test plan is an stdSEM document and writing is outside the scope of SiTEMPPO. However, it's the base document for all test topics during the development process and covers subjects like test requirements, test management, test documentation, test goals, end-of-test criteria, etc. Its contents are obligatory for all members of the test team. For detailed information please refer to http://se_Hlt528565386m_Hlt528565386.siemens.at/stdsem_e/p_desi/qe2.htm.
281 2.1.1.2 Writing the Project Plan
282 As an output of the test plan a Project Plan (e.g. MS Project) is written that contains tasks for all test activities. Input for the plan is given by the
283 - general budget for testing activities
284 - estimated number of test cases to be developed
285 - number of resources, milestones
286 - estimated effort of executing a test case
287 - bug analysis
288 - regression testing (testing fixed bugs) effort
289 2.1.1.3 Defining Test Case Attributes
290 After the implementation phase you will have a lot of test cases (even in small projects) and it's very likely, that you want to have just a few of your test cases bundled for test execution, because
291 - you don't have the time to execute all of them and therefore you decide to execute the high priority ones only.
Username: Administrator
Exclusive edit mode

Figure 39 – DOORS: Before changing

The module 'Huge Module' is changed in DOORS and then should be updated in TEMPPO. The requirement 'Introduction' is deleted and the requirement 'Description of Use' is renamed to 'How to Use' (see Figure 40).

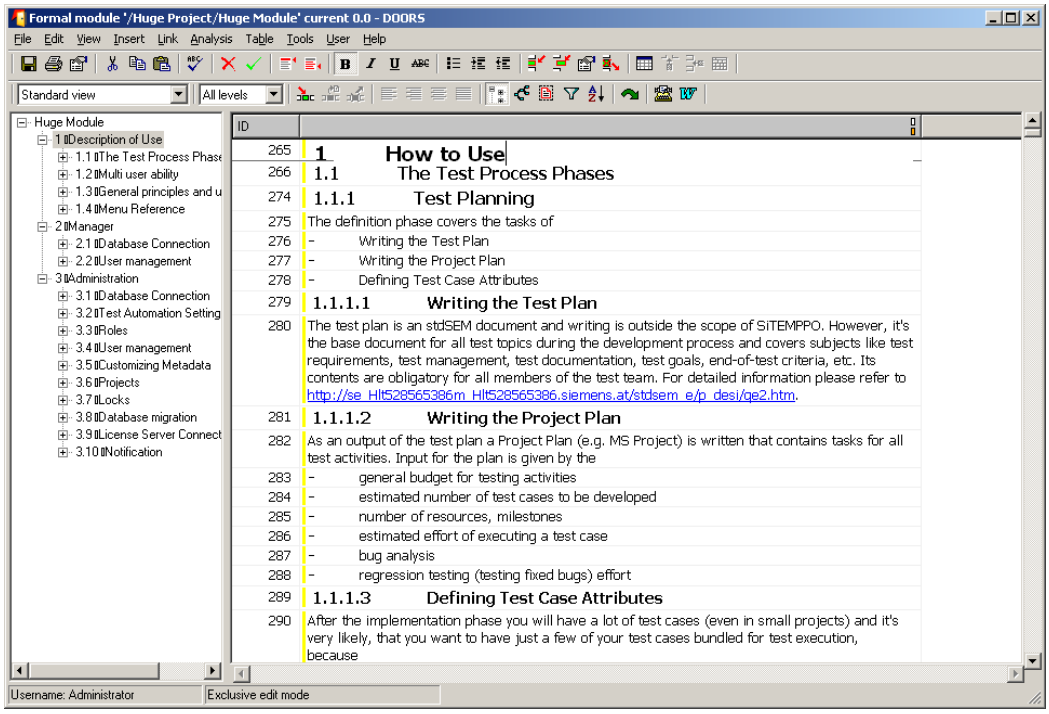
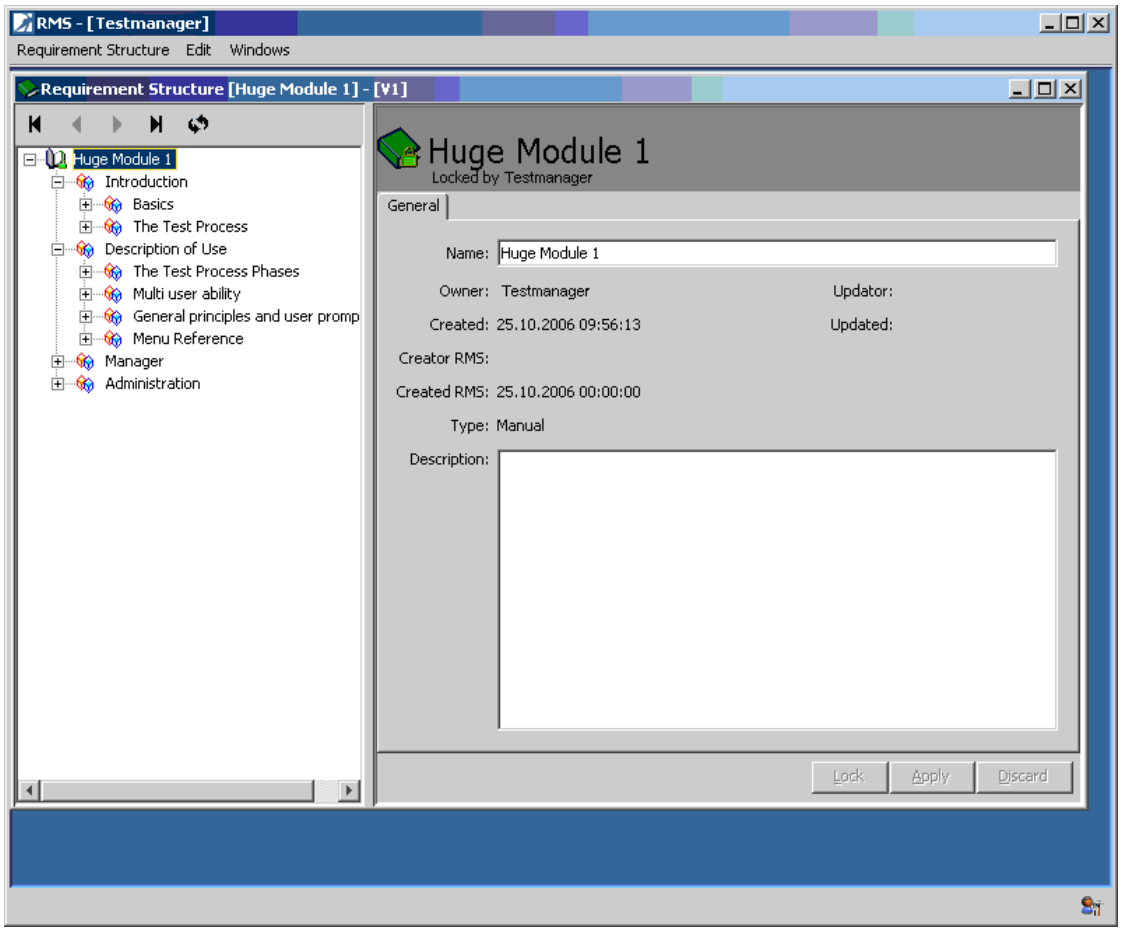

Formal module '/Huge Project/Huge Module' current 0.0 - DOORS
File Edit View Insert Link Analysis Table Tools User Help
Standard view
All levels
Huge Module
1 Description of Use
1.1 The Test Process Phase
1.2 Multi user ability
1.3 General principles and u
1.4 Menu Reference
2 Manager
2.1 Database Connection
2.2 User management
3 Administration
3.1 Database Connection
3.2 Test Automation Setting
3.3 Roles
3.4 User management
3.5 Customizing Metadata
3.6 Projects
3.7 Locks
3.8 Database migration
3.9 License Server Connect
3.10 Notification
ID
265 1 How to Use
266 1.1 The Test Process Phases
274 1.1.1 Test Planning
275 The definition phase covers the tasks of
276 - Writing the Test Plan
277 - Writing the Project Plan
278 - Defining Test Case Attributes
279 1.1.1.1 Writing the Test Plan
280 The test plan is an stdSEM document and writing is outside the scope of SiTEMPPO. However, it's the base document for all test topics during the development process and covers subjects like test requirements, test management, test documentation, test goals, end-of-test criteria, etc. Its contents are obligatory for all members of the test team. For detailed information please refer to http://se_Hlt528565386m_Hlt528565386.siemens.at/stdsem_e/p_desi/qe2.htm.
281 1.1.1.2 Writing the Project Plan
282 As an output of the test plan a Project Plan (e.g. MS Project) is written that contains tasks for all test activities. Input for the plan is given by the
283 - general budget for testing activities
284 - estimated number of test cases to be developed
285 - number of resources, milestones
286 - estimated effort of executing a test case
287 - bug analysis
288 - regression testing (testing fixed bugs) effort
289 1.1.1.3 Defining Test Case Attributes
290 After the implementation phase you will have a lot of test cases (even in small projects) and it's very likely, that you want to have just a few of your test cases bundled for test execution, because
Username: Administrator
Exclusive edit mode

Figure 40 – DOORS: Change requirements

After changing the module in DOORS, start the update process. In the next figure (see Figure 41) you can compare the latest version of requirement structure with the version before.



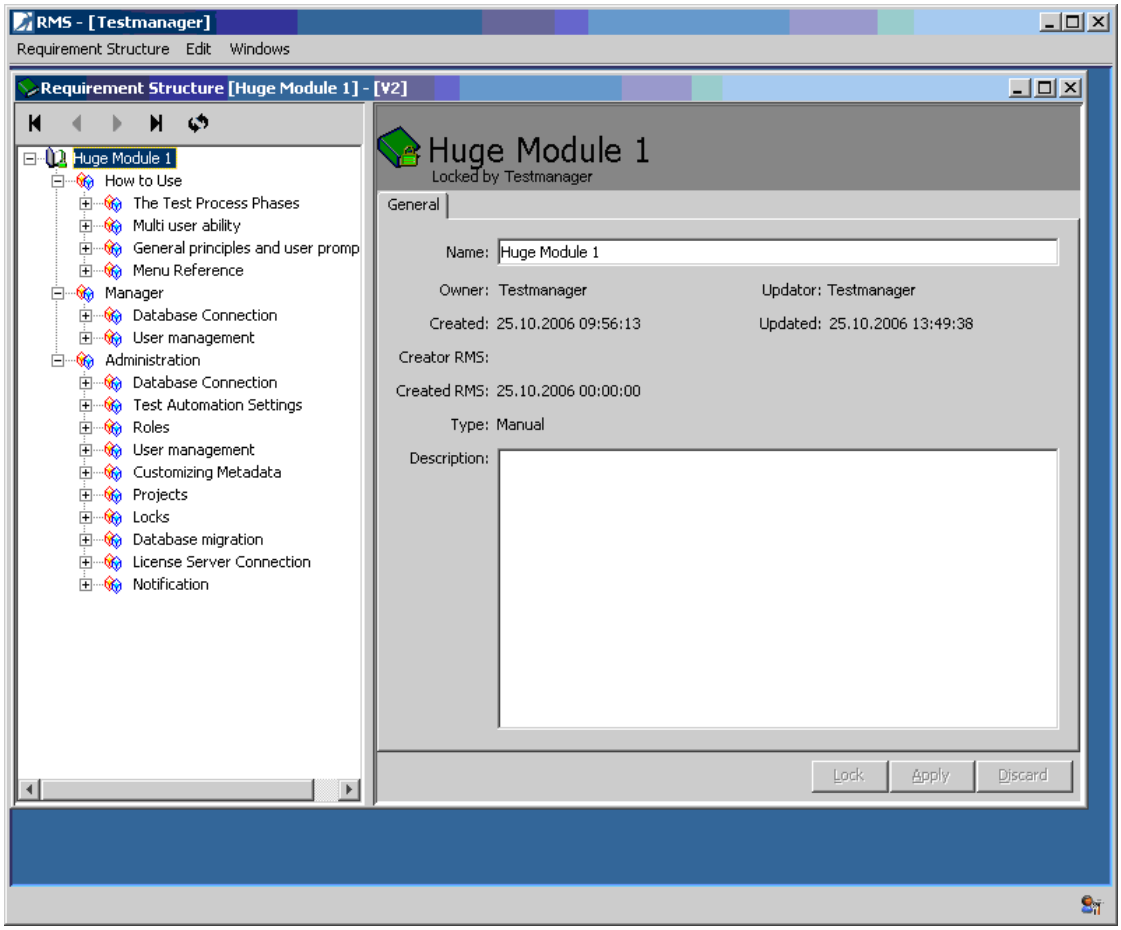


Figure 41 – Compare: before and after updating

2.5.3.2 RequisitePro

With this feature you can update your requirement structure from TEMPPO to the project in RequisitePro.

Data imported from RequisitePro cannot be updated by a TEMPPO user. RequisitePro requirements can be updated in RequisitePro and imported in TEMPPO or changed in latest. The update function is the same as in 2.5.1. This function checks in the actual latest version (see also 2.11) and updates the new latest version of the requirement structure, irrespective of the activated version.

By pressing the menu item **Requirement Structure > Update** the requirement update process starts, see chapter 2.5.1. The menu item is enabled when a requirement structure is opened and this requirement structure has the type for the RM tool "Rational RequisitePro", not "Manual".

There is no preview or undo functionality when the wrong requirement structure is selected, but the latest version is checked in before updating. No changes are lost.

After updating the requirement structure a new version (=2) is created. In Figure 42 there is displayed the new requirement. Some requirements are missing compared to V1.

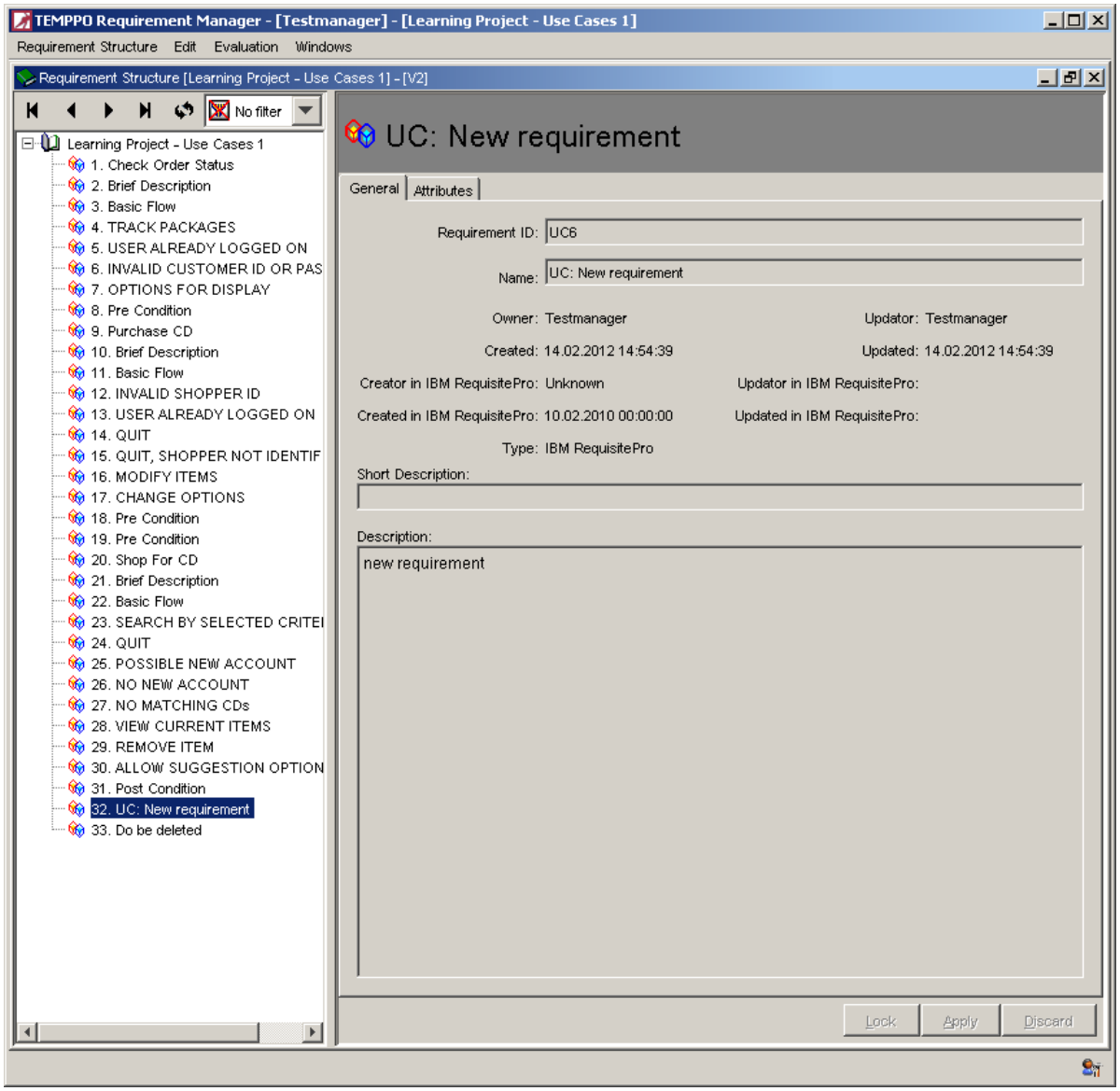


Figure 42 - Requirement Manager – Updated

2.5.3.3 CSV

If requirements have been imported from Excel (csv), they can be also updated in case of maintaining requirements is done in Excel: Change requirement name, content, short text.

Also deleted requirements are concerned.

If requirements are imported from csv (of course as a list) and the list is transformed to a tree, an update will keep this tree:

- The tree structure is NOT updated.
- Change requirements are updated.
- New requirements are added.

2.5.3.4 XML

If requirements have been imported from XML, and are maintained in XML they can be also updated: Changes in requirement name, content, short text.

Also deleted requirements are concerned.

If requirements are imported from csv (of course as a list) and the list is transformed to a tree, an update affects this tree.

2.5.3.5 Result of update

After updating a requirement structure a window is shown that informs you, how many requirements were

- Updated
- Deleted
- Changed

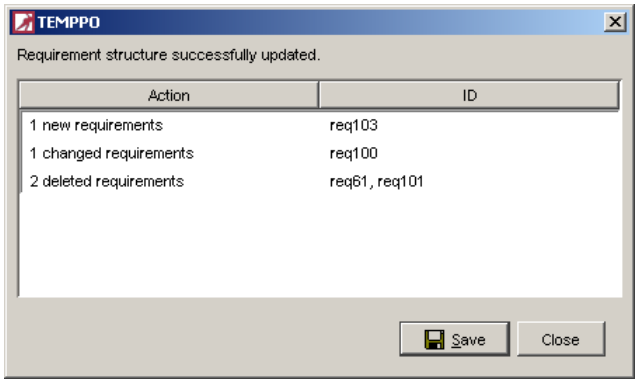


Figure 43 - Update information

2.5.3.6 Apply requirement updates

Requirement structures and test structures live in fully separated environments. So it can be that a latest test structure version works with a not latest requirement structure version. This is always the case after an update of a requirement structure. An automatic update of the current test structure version to the latest requirement structure version may not be wanted by the user and would cause problems anyway, e.g. if more than one user work on this version. It's only possible to propagate to the latest requirement structure version.

So an update to the latest requirement structure version can only be made manually initiated. Open the TEMPPO Test Management environment and open the project and test structure. By pressing the menu **Test Structure > Apply requirement updates…** Figure 44 is shown. All assigned and updated requirement structures are shown in the lists. Select the requirement structures when the assignments should be updated. By clicking **Apply**, the test structure is checked in and then propagation is executed.

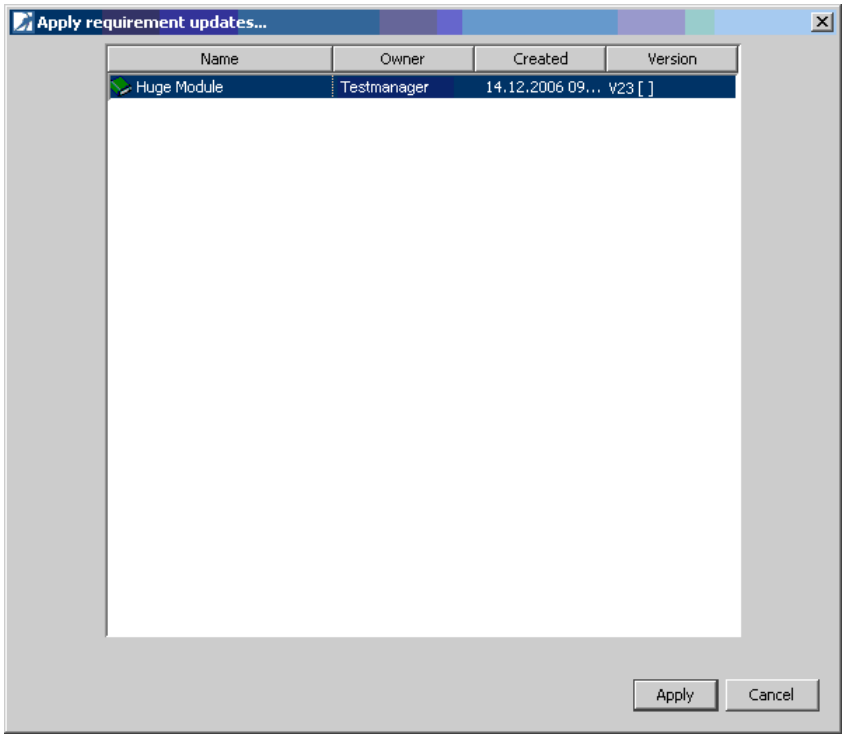


Figure 44 – Apply requirement updates

Updating a requirement structure does not cause that a task list is created, a task list (2.6) is created internally if the test structure is updated to the latest requirement structure version. Deleted requirements are unassigned from the test cases.

If only a new column (attribute) is added to view in Telelogic DOORS, but requirements aren't changed. When applying requirement updates these requirements are recognized as unchanged. This means that no tasks are created for these requirements, but the new version of requirement is used and all attributes are available in test structures.

If there is no implicit propagation to the latest requirement structure version, Figure 45 is shown.

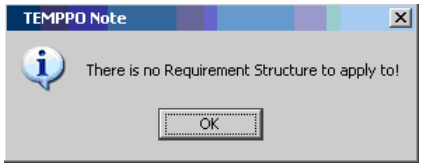


Figure 45 – No requirement structure for updating

2.5.3.7 Example: Apply requirement updates

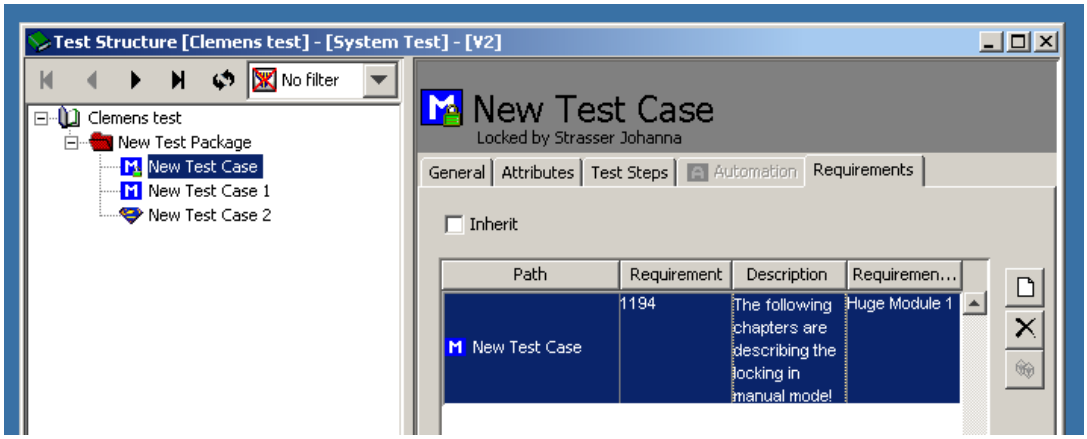


Figure 46 – Assigned requirement

The test case has assigned the requirement "1194" (see Figure 46). Nevertheless, this requirement is deleted in DOORS (Figure 47).

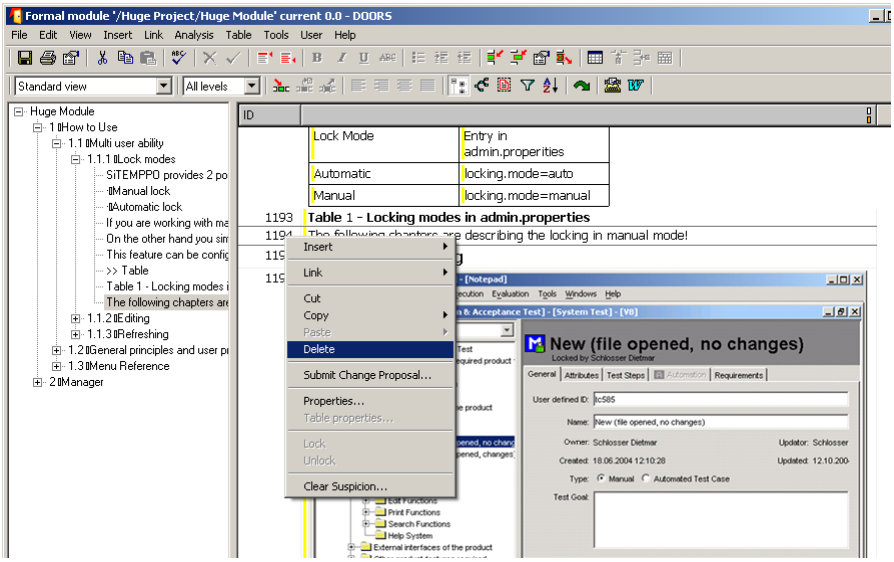


Figure 47 – Delete in DOORS

After deleting, the requirement structure in TEMPPO is updated (**Requirement Structure > Update**), see Figure 48.

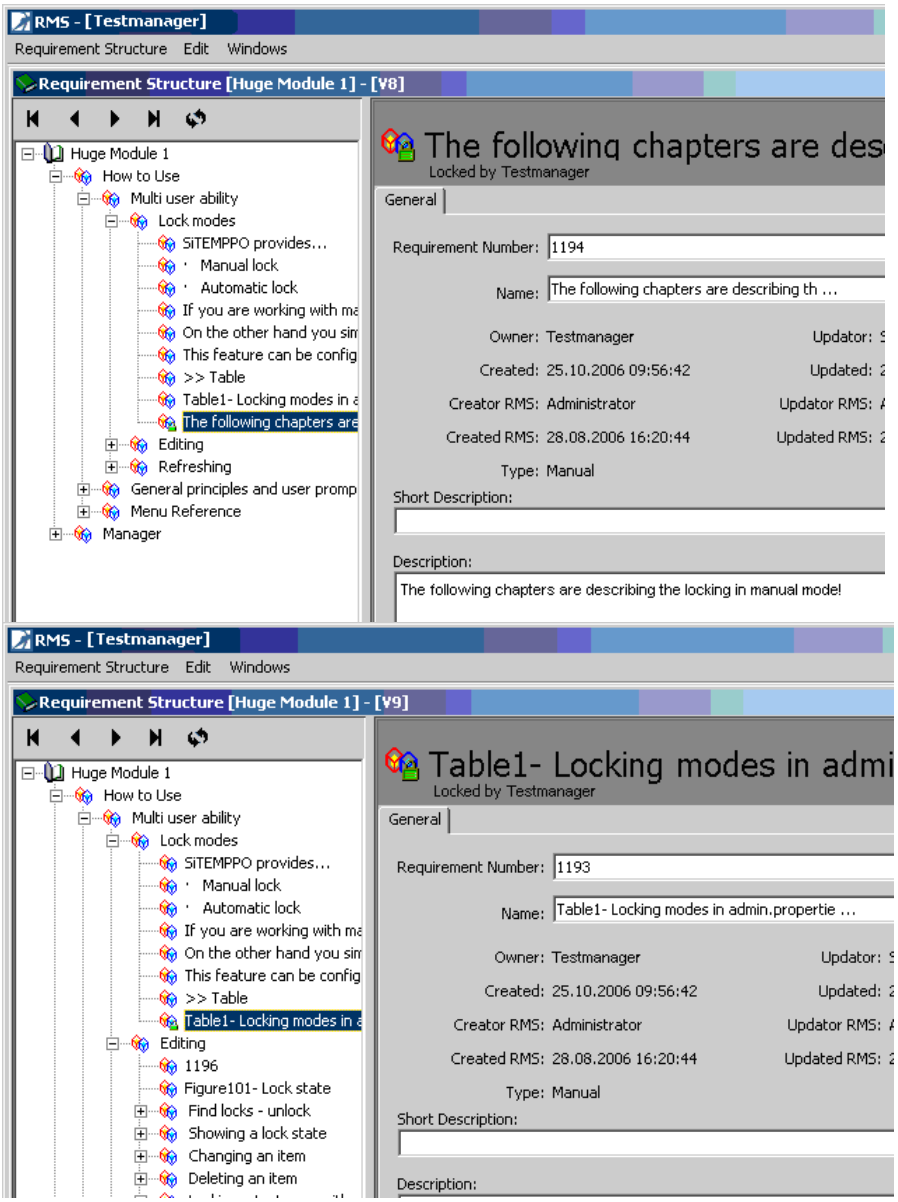


Figure 48 – Before and after update

Open the test structure again and the requirement which is assigned to a test cases isn't the requirement of the latest requirement structure anymore. Now you have to update the assigns (**Test Structure > Apply requirement updates...**).

Then all changed assignments and new requirements are listed in a task list (menu **Test Structure > Task List > Show**) (Figure 49), see also 2.6.

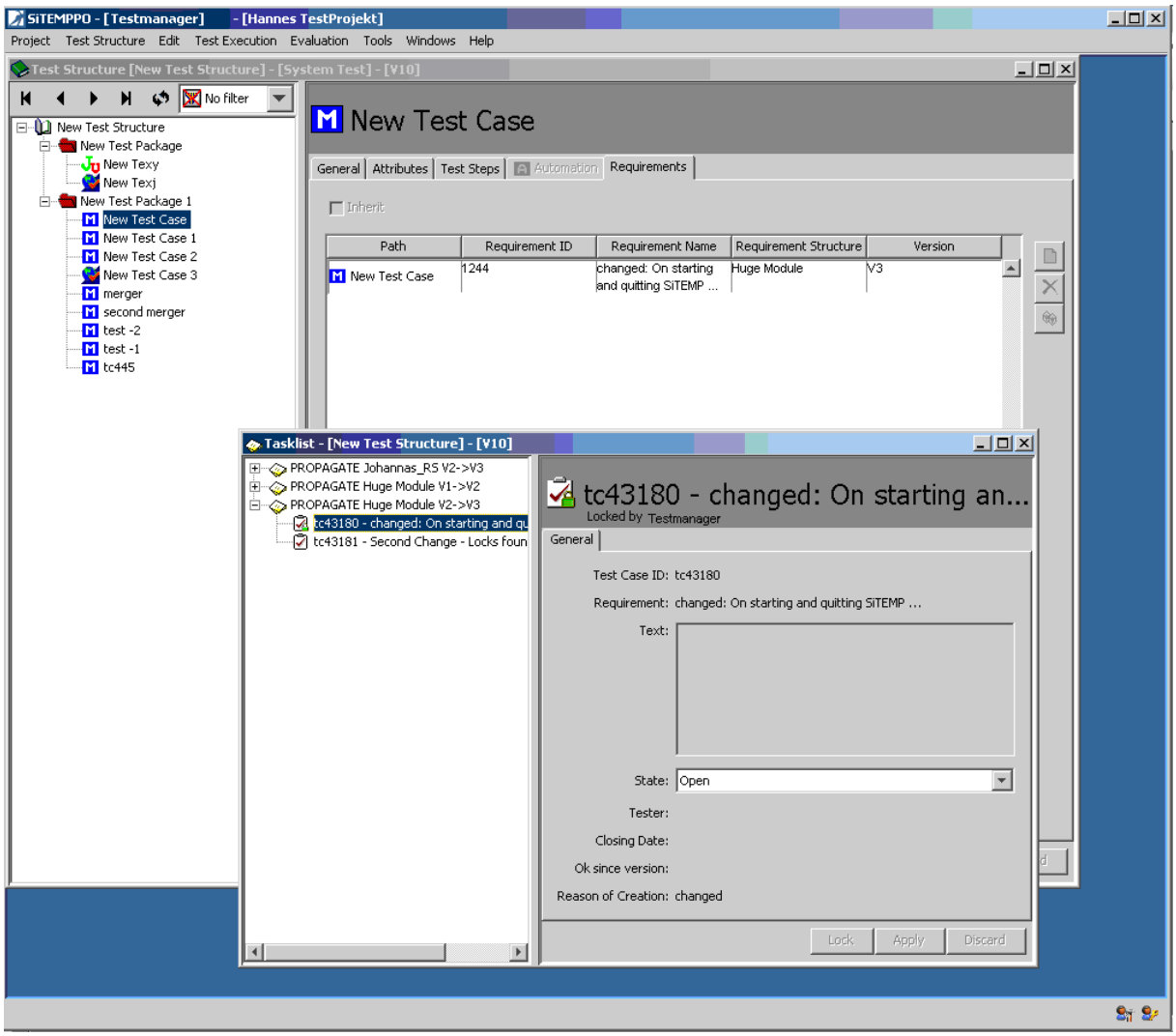


Figure 49 – After updating; Task List

2.6 Task List

A task list contains tasks, each of which consists of a test case - requirement pair. The idea is that each task indicates a test case - requirement combination, which must be corrected.

The task list is assigned to a test structure (and a given or latest version of the test structure). Each entry is defined by a requirement, the assigned test case and a text. The text contains the reason why the requirement – test case assignment could not be added to the DOORS DB. The possible states of the assignments are:

- Open
- Closed

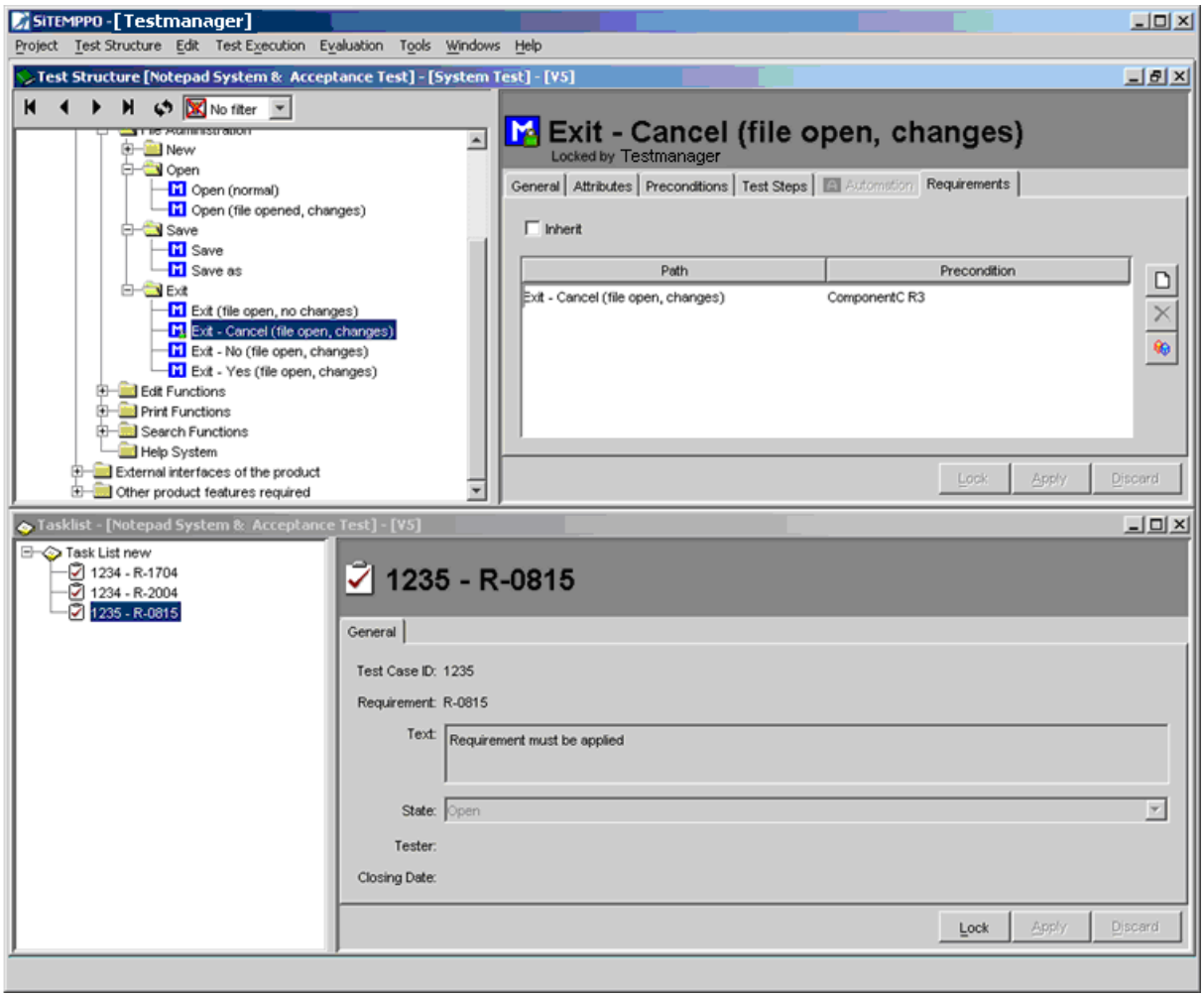


Figure 50 - Task List

The lists are represented by a tree structure. Each list consists of one or many entries. All entries are marked as open the first time they are stored in the DB. If the user clicks an entry, the test case of this entry is selected in the test structure window. The user now has the possibility to change the assignment, delete it or create a new assignment or do nothing (if the failure is DOORS-sided and cannot be corrected in TEMPPO). If all necessary actions are made, the user can mark the entry in the task list as closed (first "**lock**" then "**apply**") and click upon another task.

Task lists can be deleted in the task list window if all tasks are closed. The task list has to be selected and via the context menu item "**Delete task list**" a confirmation window comes up. Confirming with OK deletes the task list.

2.7 Export to XML

This feature allows exporting the entire requirement structure into an XML document. When a requirement structure is open and the root node or a requirement is selected, the menu item `Requirement Structure > Export to XML` is enabled.

After entering a name, the XML file is stored to the file system (conforming to **requstructure.dtd**).

The requstructure.dtd can be found in your TEMPPO/XML directory.

The following window is shown after exporting successful.

Figure 51 – Requirement structure – Exporting

When you plan to exchange test and requirement structures over databases via XML, you have to be aware of exporting the correct version of a requirement structure.

2.8 Assign Attributes to Requirement Structures

For a chosen requirement structure, attributes can be assigned to the requirement structure.

Open the TEMPPO Administrator application and after connecting chose the tab "**Metadata**" and then tab "Requirement Structures".

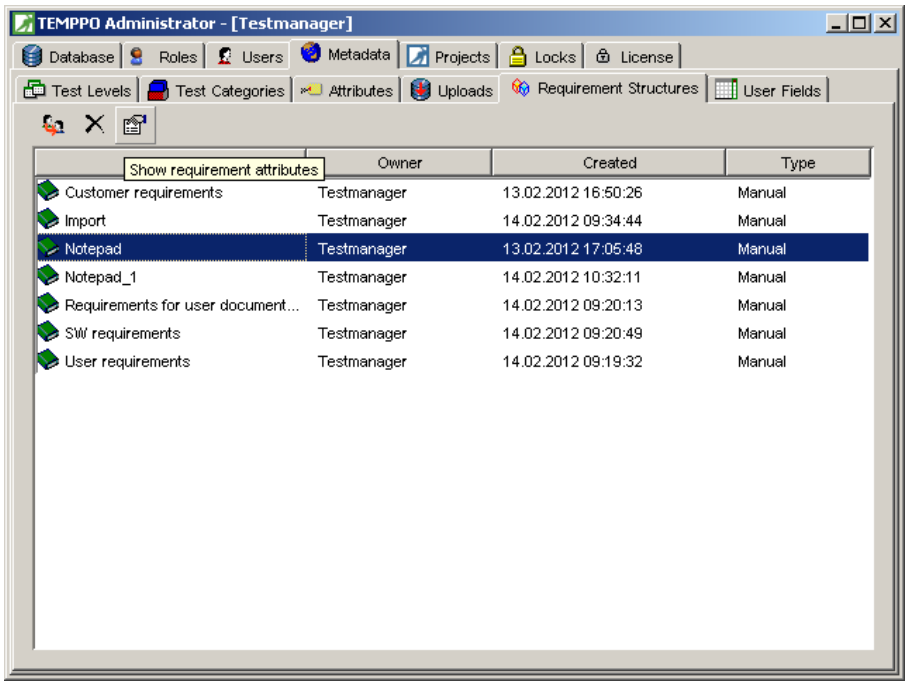


Figure 52 – Assign attributes

The assignment is made for each requirement structure.

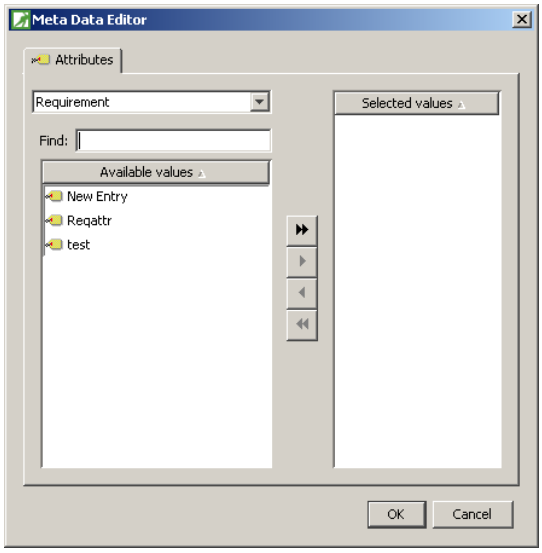


Figure 53 – Meta data editor

On the left side all available attributes are listed. By clicking the buttons >>, >, <,<< the attributes can be moved to right list box. The assignments on the right are saved by pressing the button "Apply".

2.9 Assign Requirement Structures to project

In the TEMPPO Administrator you can assign the requirement structures to the projects, so that the requirements are available for the test packages or test cases.

Open the TEMPPO Administrator application and after connecting chose the tab "**Projects**".

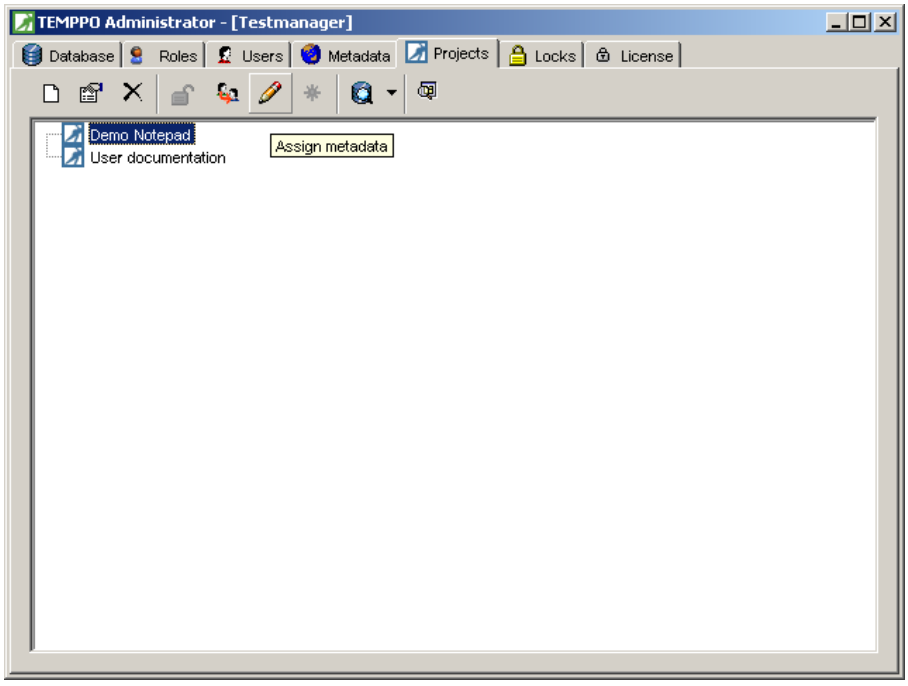


Figure 54 – Assign Metadata

Then click the button "**Assign Metadata**" (see Figure 54) and then Figure 55 is opened. In the tab "**Requirement Structure**" you can select the requirement structures for the selected project.

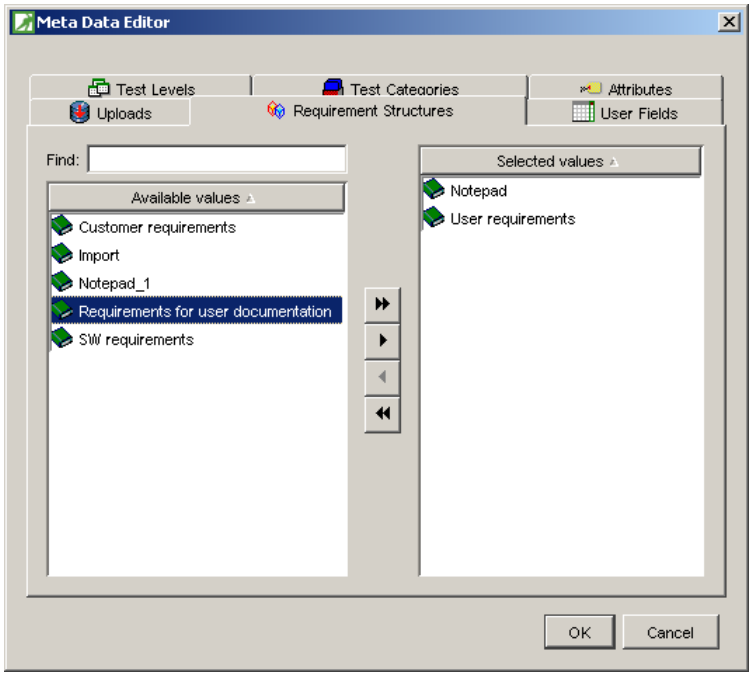


Figure 55 – Assign requirement structure

2.10 Link Requirements

Before you can link test cases to requirements, you have to assign a requirement structure to the project.

For linking requirements, start the TEMPPO Test Manager. After opening the project and the test structure, select a test package or test case and open the tab "**Requirements**" (see Figure 56).

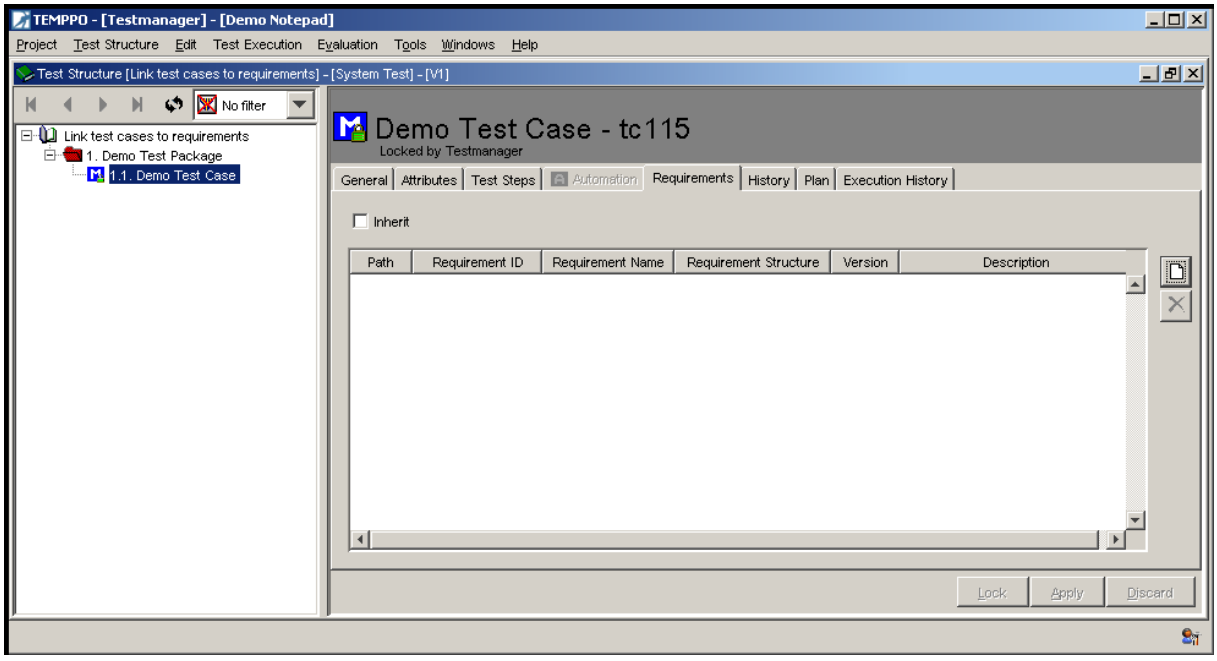


Figure 56 – Link requirements

The test case can inherit from the test package's requirements. Additionally, the selected test case can have associated requirements.

With the button "**New**" a new window opens, where you can select requirements (see Figure 57). In the combo box you select the requirement structure, and below its requirements are shown. If a requirement is already assigned, it's written in black, but if there is a new assignment, the requirement is written in grey.

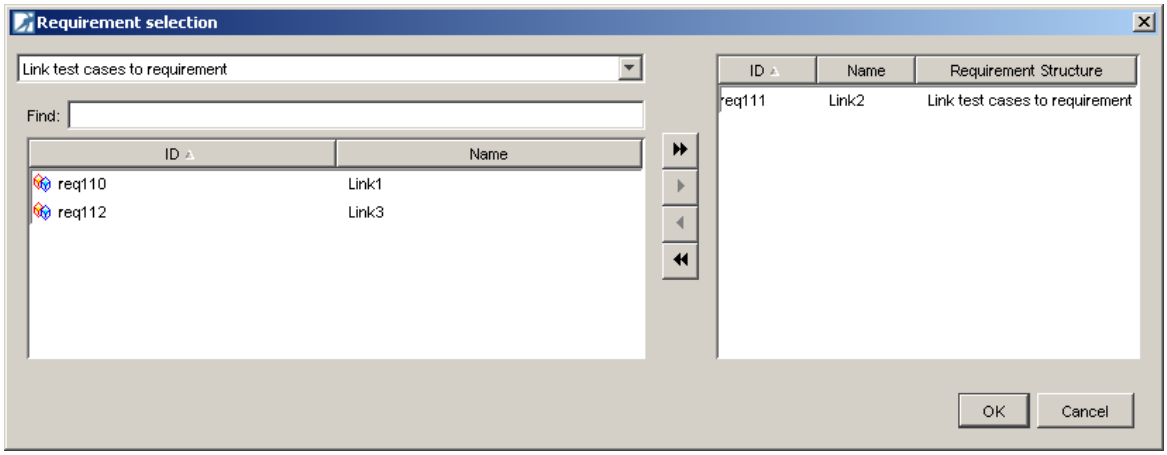


Figure 57 – Requirement selection

After selecting the requirements, the selected ones are shown as a list (see Figure 58).

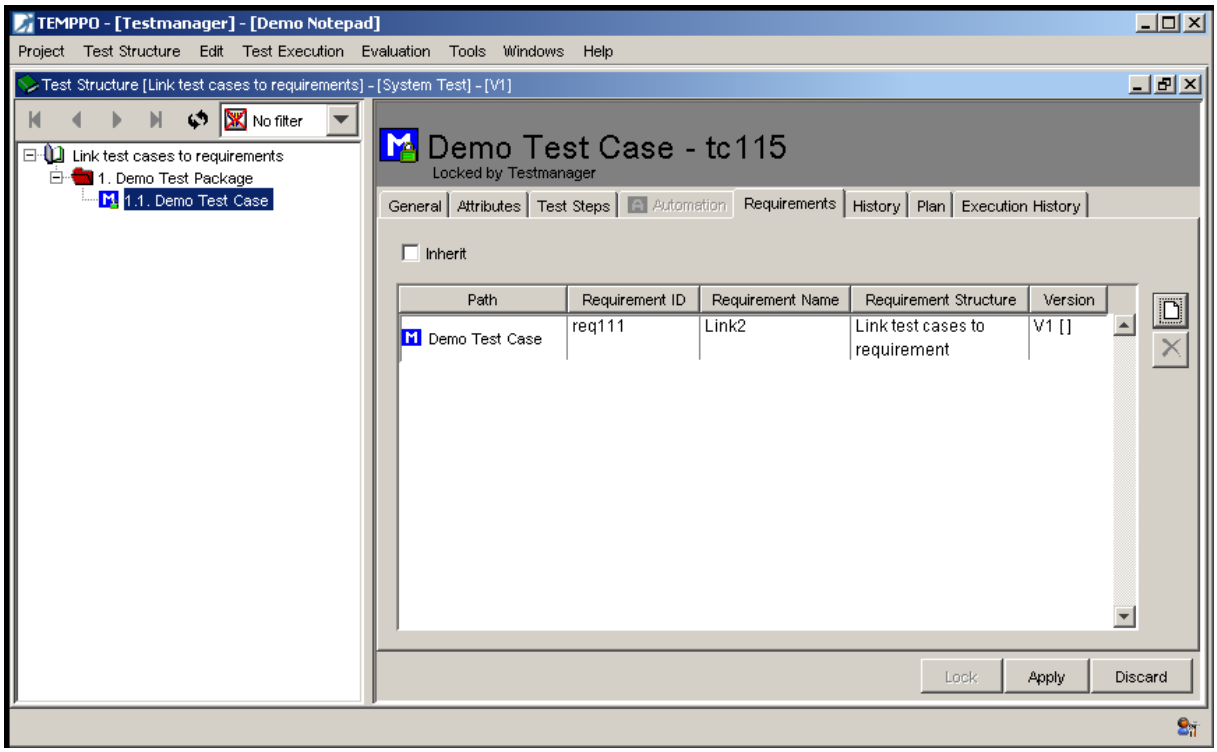
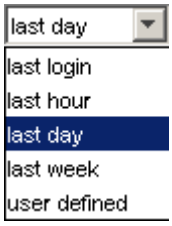


Figure 58 - Requirements

2.11 Newsboard

The newsboard informs the user about changes done on the current requirement structure. It can be opened by calling the menu item **Requirement Structure -> Newsboard**. In **Settings** it can be configured that is it shown automatically

after opening a requirement structure. Since time is going on and newsboard doesn't poll, user has to press the **Refresh** button to get the latest "news".



The display of newsboard can be configured be setting **last login, last hour, last day last week** or **user defined**. If **user defined** is selected, a date with calendar and text fields for time (hh, mm) and the **Apply** button are editable.

If "last login" is selected, the time stamp of user's last logout is chosen!

If a newsboard entry is activated, the corresponding requirement is selected automatically, except if one was deleted. In the newsboard table the action (new, changed, deleted), requirement ID, requirement name, date of action, and the person are shown.

If an item of newsboard is selected, the corresponding one is also highlighted in the requirement structure.

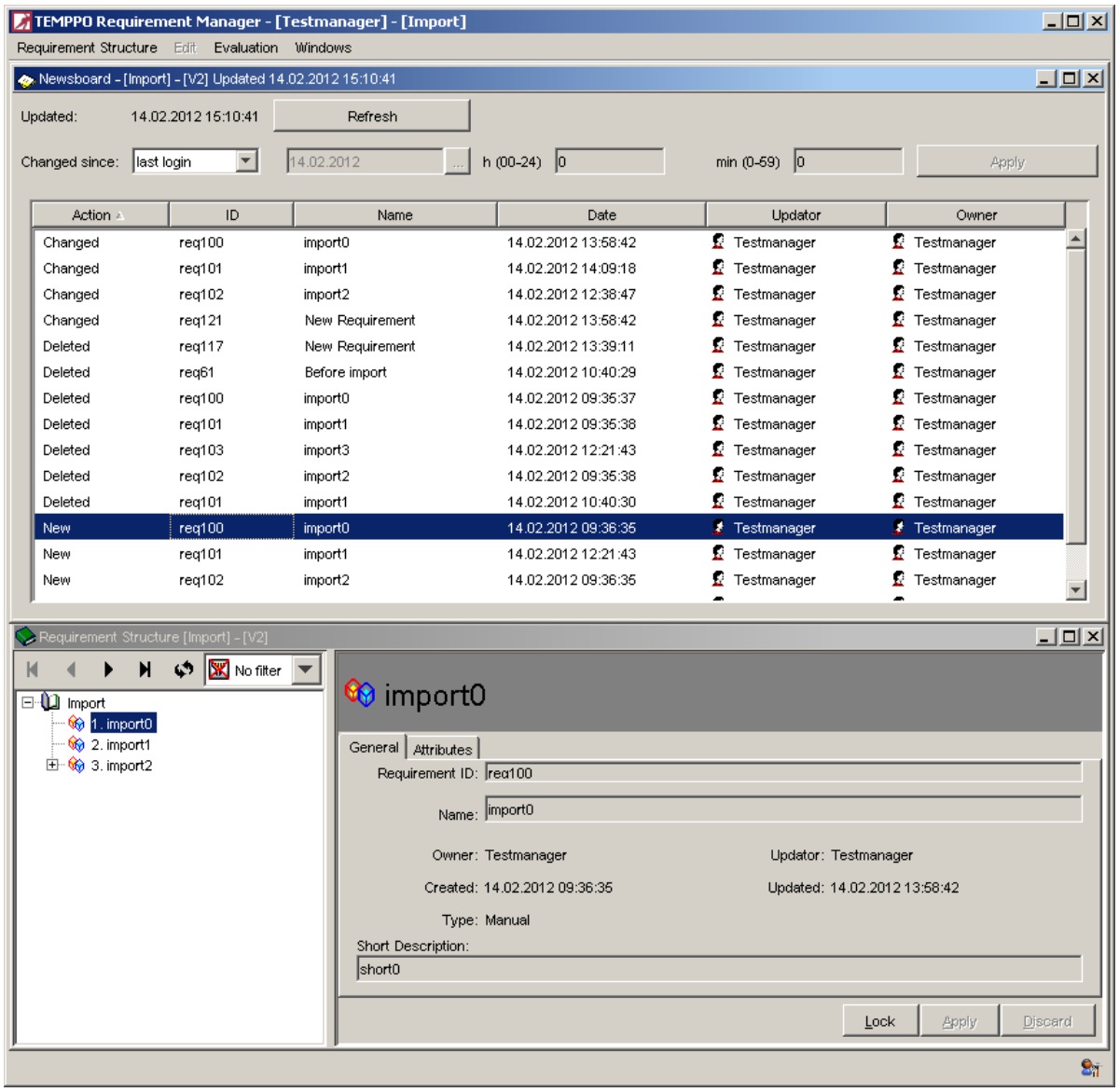


Figure 59 - Newsboard

2.12 Version

Configuration management is a task that covers all phases in projects. Supporting a large palette of CM tools from a very powerful but expensive one like ClearCase to a cheap one with restricted functionality would be a challenge. For example ClearCase offers attributes for each administration unit; VSS does not have such commands.

In TEMPPO it is possible to check in an entire requirement structure, where "whole" means the hierarchical order of all requirements as well as their data. In contrast to other CM tools where check in and check out are separate steps, checking in a requirement structure in TEMPPO will check it out again, i.e. a new editable version is created automatically. Naturally you have the possibility to restore any version of the requirement structure that has been checked in. Versioning is meaningful when you have to change / extend your requirement structure due to version changes of your application.

A requirement structure is automatically versioned before an update from a RM Tool.

Versioning manually:

You create and activate versions in TEMPPO Requirement Manager using **Requirement Structure > Version**. The following example should illustrate how the CM features of TEMPPO Requirement Manager works.

There is a requirement structure "CSV import", which has already requirements (see Figure 60).

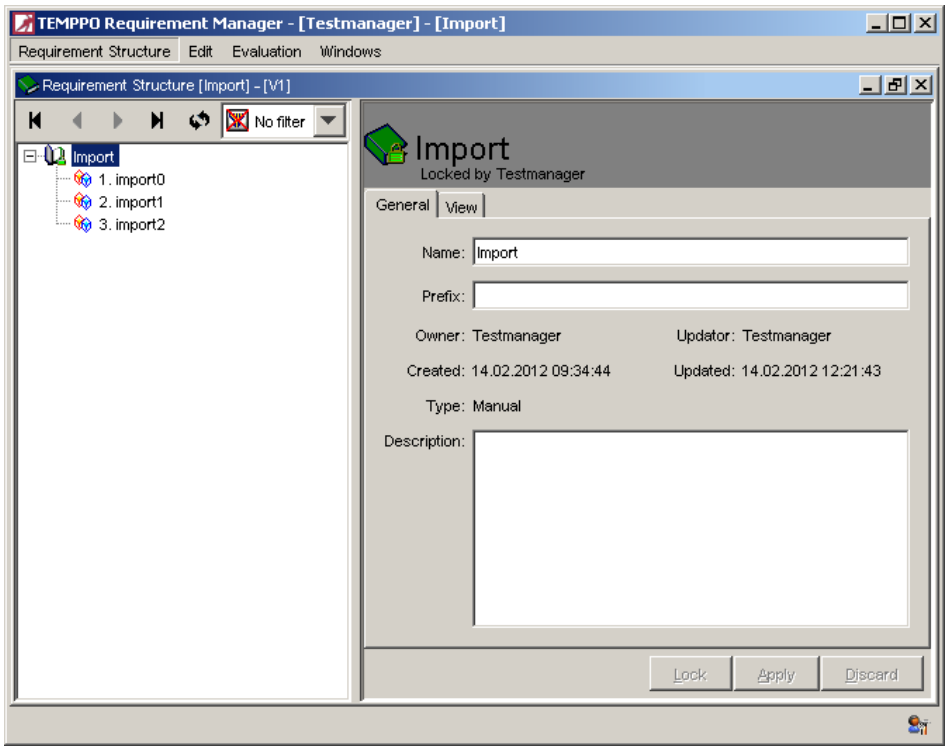


Figure 60 – Before check in

Before importing a CSV – file, the requirement structure should be checked in:

1. Consider the requirement structure displayed in Figure 61. Initially there exists just one version of the requirement structure, version "1" on the main line. In TEMPPO, every last version gets the label "latest", signaling that the requirement structure in this version is checked out for editing.

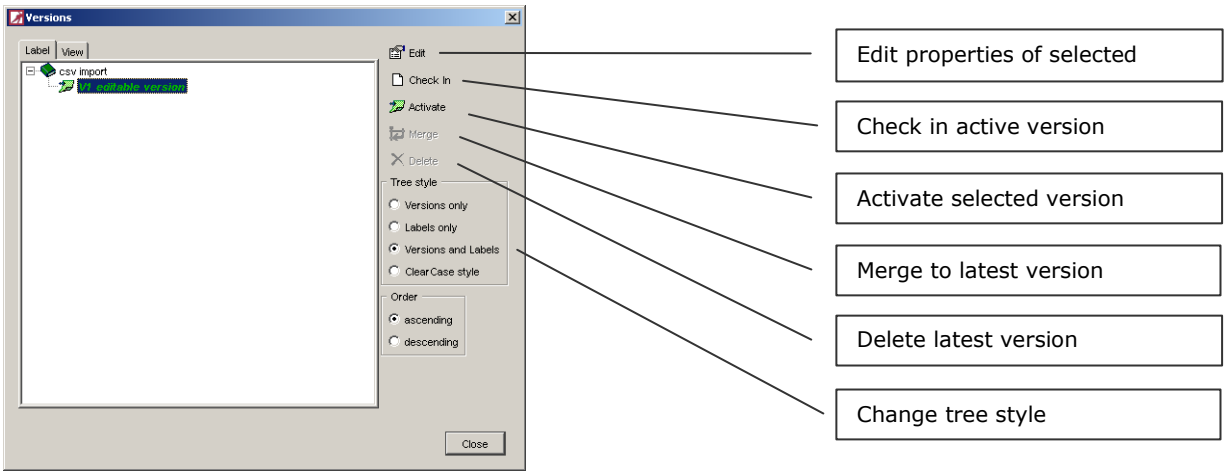


Figure 61 - CM, Version tree before first check in

Additionally you can add a so called view to the checked-in version (=baseline). A view is either a filter which is created when working with requirement structures or a self created logical expression in tab "`view`".

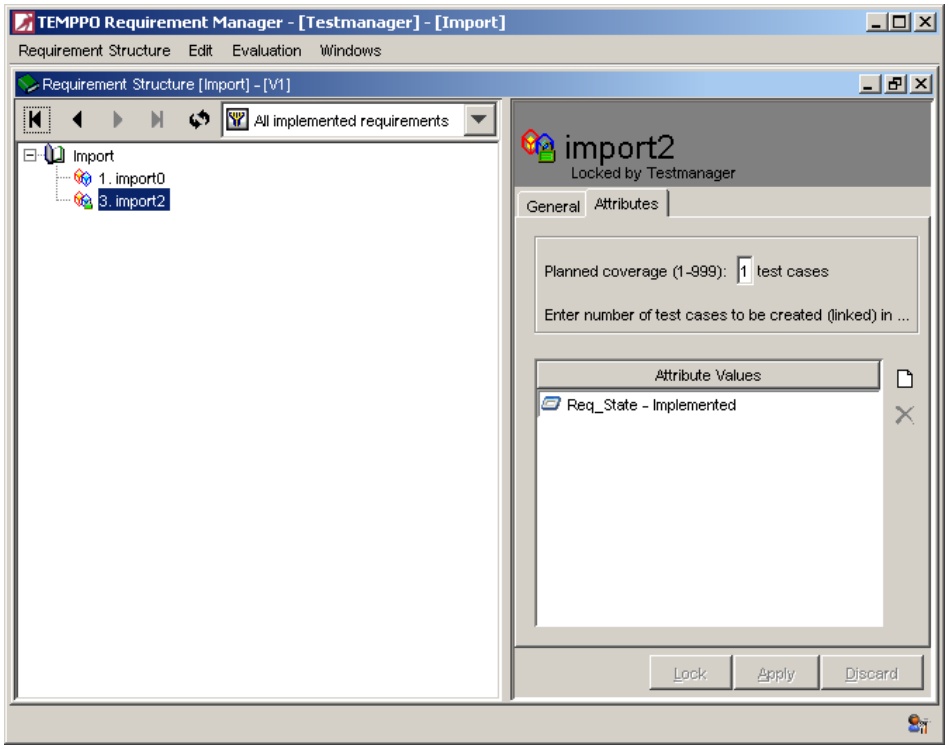


Figure 62 - Filter "All implemented requirements"

If you want to test only a subset of all requirements, e.g. all "implemented" requirements (see Figure 62), change to tab "view", select a filter and press the button "**Apply**" to set it to the current "**view**". When pressing the button "**Refresh**", you see how many requirements are in and not in the view.

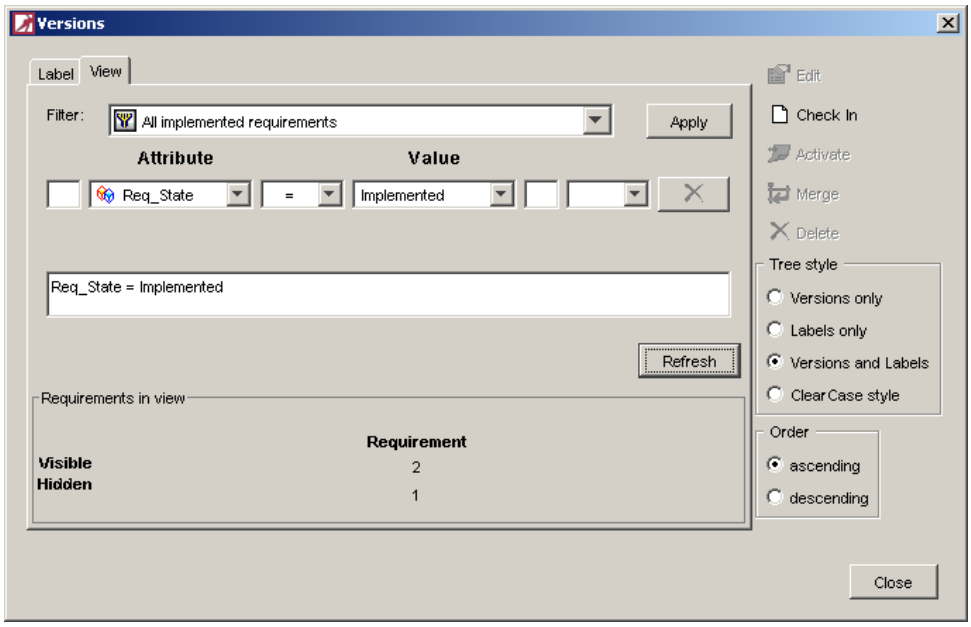


Figure 63 - Requirements in view

If you check-in that requirement structure with a view, the requirement structure looks like follows (requirements not in view are not displayed, or displayed grayed, if they cover child requirements):

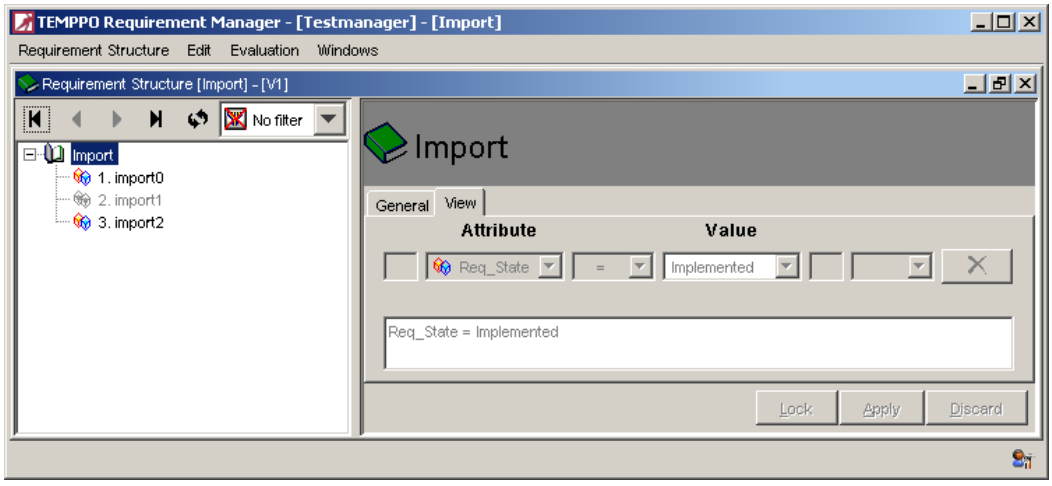


Figure 64 - Checked in requirement structure with view

In the test structure you link test cases exactly to those requirements which are in the view. Requirements which are not in the view do not become visible in the test structure.

2. If you check in the requirement structure by using the Check in active version button in the Versions dialog you have the possibility to specify a label ("Release 1"). Then the version tree looks like displayed in Figure 65. The requirement structure gets checked out immediately and version "2" is created. The symbol signals the active version, which is again "latest".

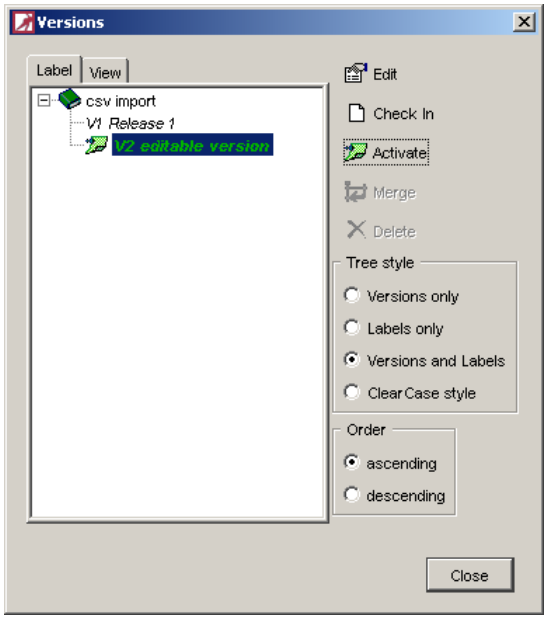


Figure 65 - CM, Version tree after checking in and labeling

Changes in the latest version of the requirement structure will now not affect "Release 1". E.g. when inserting a requirement .\Second the new requirement will only be available in the latest version of the requirement structure (see Figure 66).

You can see the active version of your requirement structure in the title bar of the requirement structure explorer.

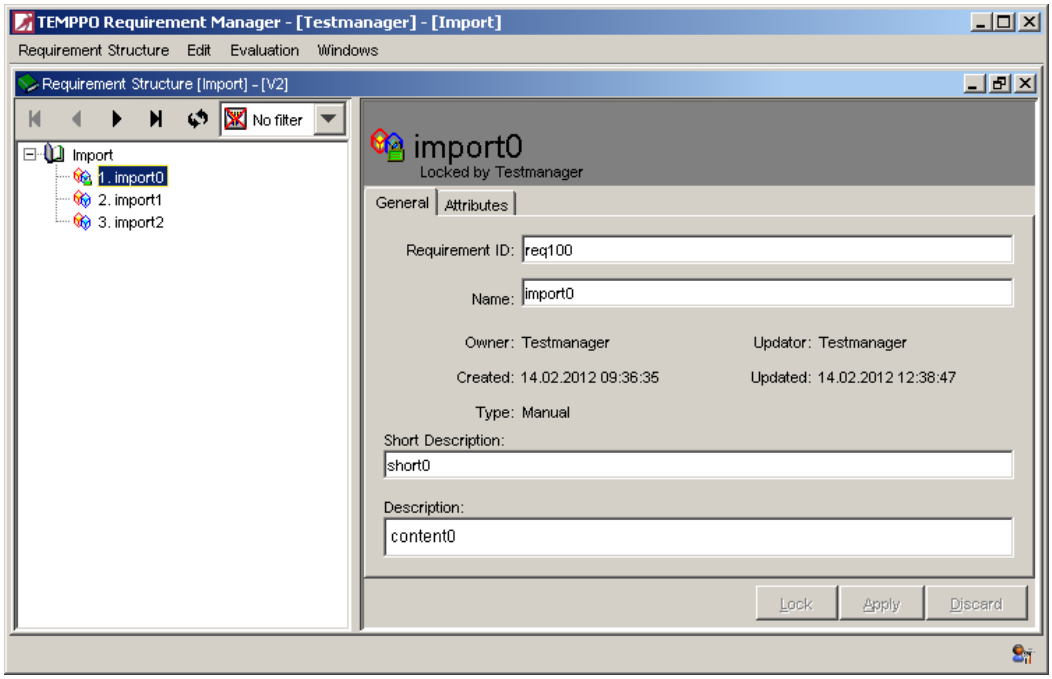


Figure 66 – After check in

3. You can restore the version of a requirement structure by activating it in the versions dialog with button (`Activate selected version`). You cannot change a requirement structure in a version, which is not "latest".

2.12.1 Merge

If you updated a requirement structure from XML or csv with a faulty file, you have the possibility to undo it by a merge of a previous version to the latest version. Activate the version you want to have as new latest version and press the button **Merge**.

2.12.2 Delete

A version can only be deleted if another version is activated. You cannot delete the current activated version.

If you updated a requirement structure from an RM tool and you have to undo it, you can select the version and press the button **Delete**.

2.13 Split Requirement Structures

Since huge manual requirement structures (> 10000 requirements on first level) are uncomfortable to handle (long loading periods for editing and assigning), the split feature allows to move specific requirements to a new requirement structure. Assignments to test cases are not affected by this process, i.e. a newly created requirement structure is automatically assigned to all affected projects and test structures.

Only first-level requirements are moved, i.e. if a first-level requirement is moved, it is moved to the new requirement structure with its entire sub-tree (see example below).

Splitting is done over all version of a requirement structure. The new requirement structure will have exactly the same version tree, as its source.

Via `Requirement Structure – Split...` the split dialog is opened (the menu is only enabled, if the root node is selected).

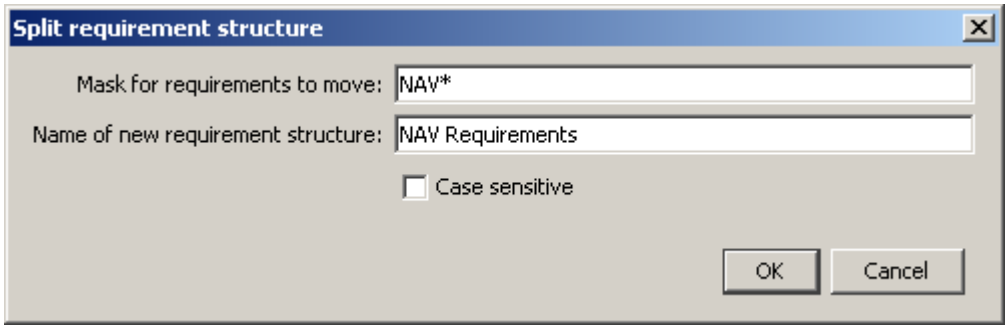


Figure 67 - Split dialog

A mask (wildcards * and ? are supported) for requirements to be moved to the new requirement structure and the name for the new requirement structure can be specified.

When pressing OK, the move process is started. Before moving requirements, the uniqueness of the requirement structure name and locks in affected test structures are checked (no locks may exist). If the checks pass, the requirements will be moved, otherwise a corresponding message is displayed and the process is terminated.

The following example illustrates the splitting process:

Requirement structure before splitting:

```
Requirement Structure
      NAV_001
      NAV_002
      NAVIGATION_003
        MAP_001
          DestInput_001
        MAP_002
      Navi_004
      RADIO_001
      RADIO_002
```

Mask for requirements to move: `NAV*`

Name of new requirement structure: `NAV Requirements`

Case sensitive: `no`

Requirement structures after splitting:

```
Requirement Structure
      RADIO_001
      RADIO_002

NAV Requirements
      NAV_001
      NAV_002
      NAVIGATION_003
        MAP_001
          DestInput_001
        MAP_002
      Navi_004
```

2.14 Filter

Users can see their requirement structures in a filtered way by creating and selecting filters i.e. for the purpose of hiding requirements that are not of interest. All fixed and user-defined attributes can be used to define a filter criterion.

Filters are stored to the database and are user specific not global. Set filters won't remain associated to a requirement structure after closing and reopening TEMPPO Requirement Manager.

2.14.1 Predefined filter

Like TEMPPO Test Manager, TEMPPO Requirement Manager provides a predefined filter. The filter "Selectable requirements" is used for requirement structures imported and updated from 3rd party tools. For the reason of already filtered requirement structures by a view, some requirements are displayed in gray

color, which means that they are not selectable. They are displayed in the requirement structure, because they could contain selectable requirements.

If you set the filter "Selectable requirements" all grayed requirements are not displayed.

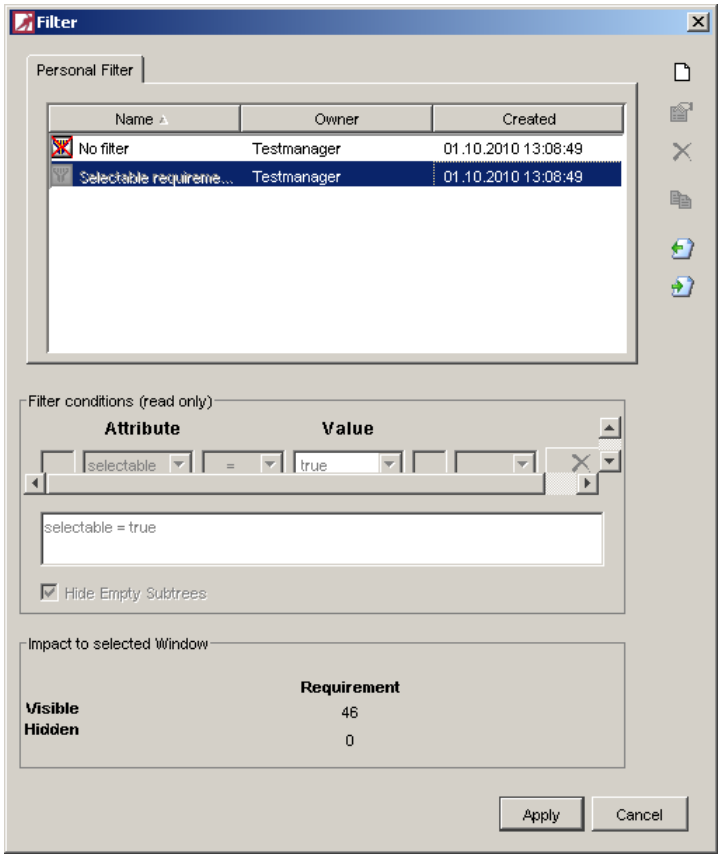


Figure 68 - Predefined filter

2.14.2Create Filter

You can create a new filter using menu **Edit > Filter** or using the Filter- Combo box -**Edit entries...** in the requirement structure.

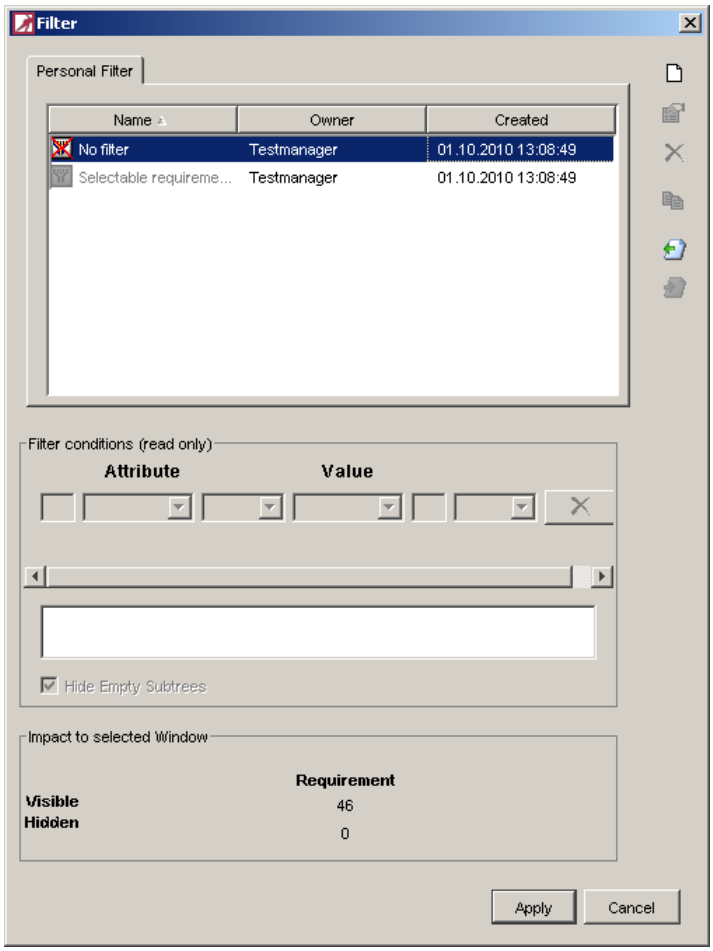


Figure 69 – Create new filter

If you click the "**Create new filter"** – button, Figure 69 is shown. The name of the filter is set by default with **New Filter** and the filter conditions can be entered. The checkbox "**Hide empty subtrees"** is not available in TEMPPO Requirement Manager.

After creation of a new requirement it may happen that it disappears after saving, if it doesn't match to a set filter.

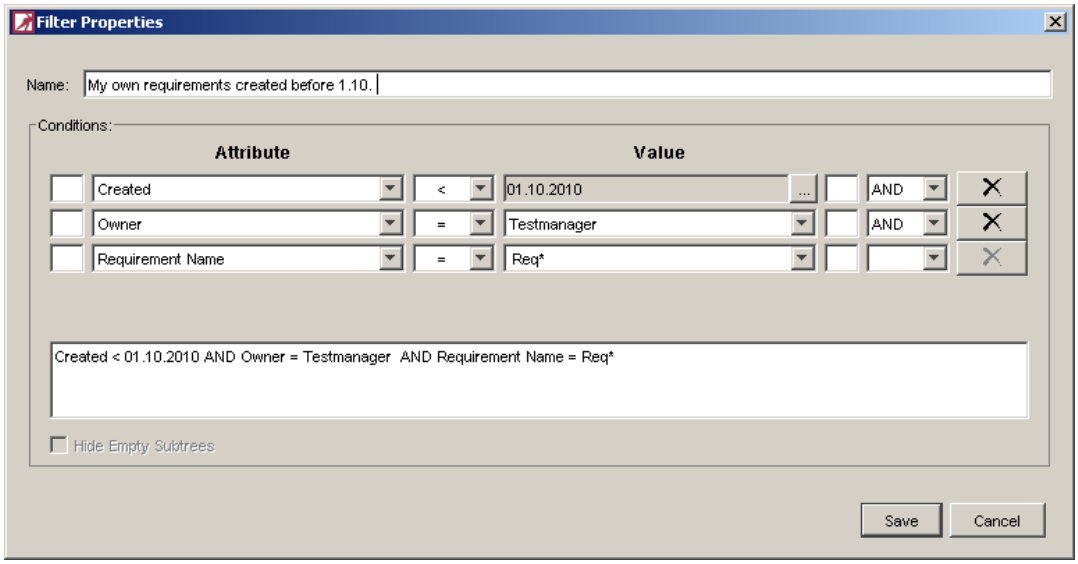
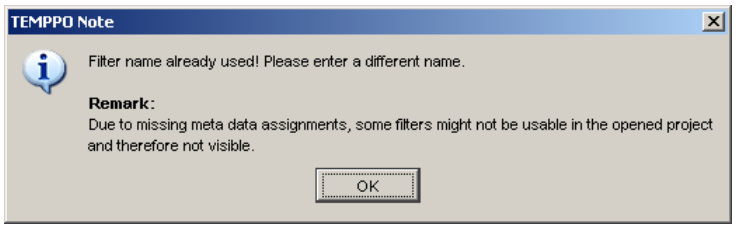


Figure 70 - Filter Properties

Pressing the **Save**-Button, the new filter is saved to the database, if a new name was entered. Otherwise the information window comes up:


TEMPPO Note
Filter name already used! Please enter a different name.
Remark:
Due to missing meta data assignments, some filters might not be usable in the opened project and therefore not visible.
OK

After saving the new filter, Figure 70 is closed and Figure 69 is shown. The new filter is inserted and selected in the list box, the filter criterion is displayed read only and the table **visible / hidden requirements** is updated.

2.14.3Change Filter

You can change existing filters by pressing the **edit filter** button. This button is only enabled when a filter is selected that is not the empty filter (**No filter**).

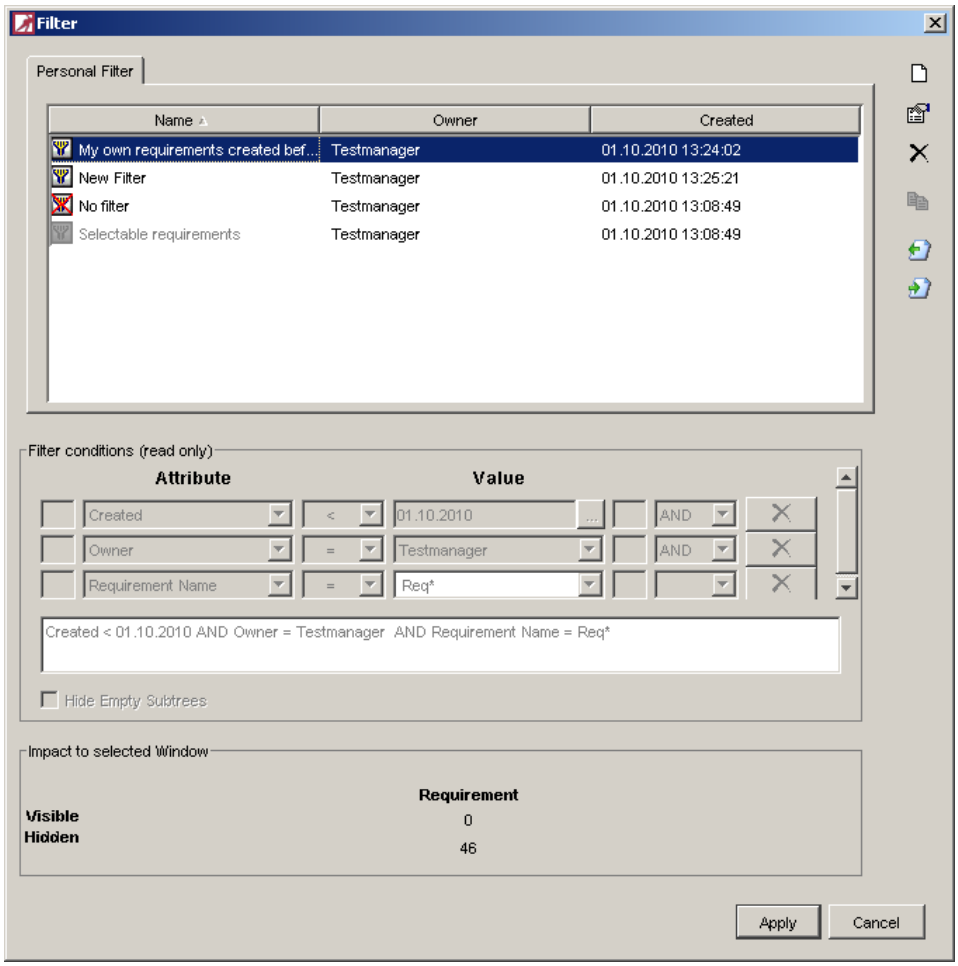


Figure 71 - Open item properties

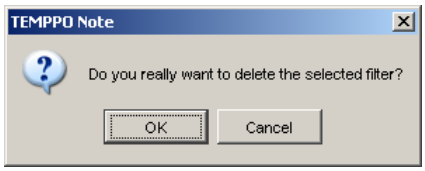
Depending on the selected filter, the conditions are displayed. Filter name is read only, filter conditions can be changed. (See Figure 70)

If the filter is in use and was changed, the changes are then applied to the requirement structure.

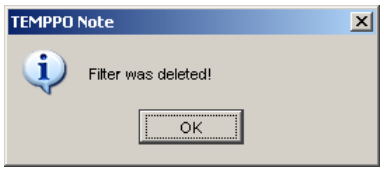
2.14.4Delete Filter

You can delete an existing filter by pressing the **delete filter** -button. This button is only enabled if the selected filter is not the empty filter (**No filter**).

After activating the **Delete item** -button, the reconfirmation window comes up:



If pressing **Yes**, the information window comes up and the filter is deleted.



After deleting a filter, the **No filter** is highlighted in the list box.

2.14.5Select Filter

TEMPPO Requirement Manager offers a fast selection mode: with the combo box in the toolbar possible filters can be set without opening the filter window.

2.14.6Show Filter

If no filter was set before opening the filter window, the list box entry **No filter** is highlighted.

If a filter is set before opening the filter window, the corresponding entry is highlighted.

When clicking on an entry in the list box, the item is highlighted and its impact on the requirement structure is displayed.

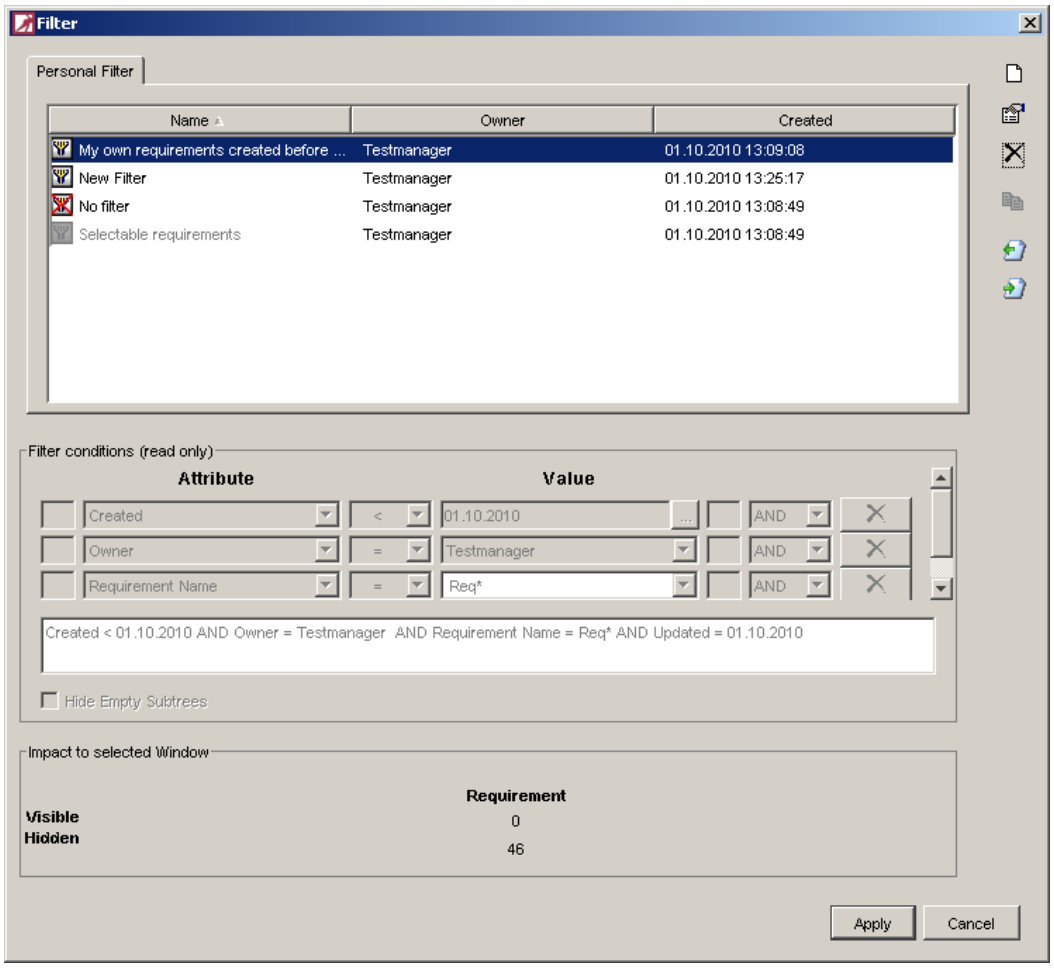


Figure 72 - Show Filter

When clicking **Apply**, Figure 72 is closed, the selected filter is set in the activated window and the combo box in the toolbar shows the current filter.

When clicking **Cancel**, Figure 72 is closed and the previous set filter remains unchanged.

2.14.7Define the filter criterion

The values of the following attributes can be used as described in Table 2: **Planned coverage, requirement name, requirement short description, requirement ID, owner, updater, created, updated, UDAs and selectable** (if a requirement is in a view).

First of all you have to choose an attribute and an operator (=, !=, IN, NOT IN). If IN or NOT IN is selected, the combo-box value changes to a text field together with the button "…". Them you can enter

- A string with a wild card or
- Press the button "…" for selecting several values.

After pressing the button "…" Figure 73 is displayed and the attribute values are selected by moving them to the right. Pressing **OK** applies the selection to the filter window. The selected values are displayed separated by a comma. Now the user can edit this line.

No blank is allowed, only a comma!

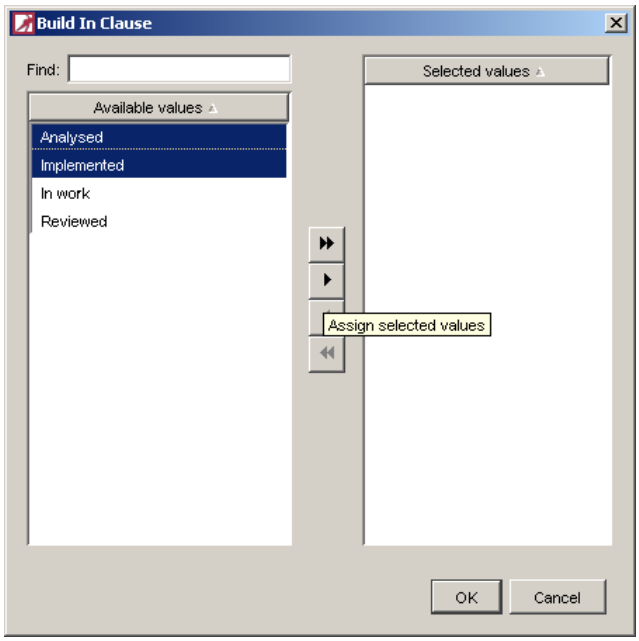


Figure 73 - Selecting attribute values for IN, NOT IN

Attributes	Operator =, !=	Operator IN, NOT IN	Operator <,>, <=, >=	Value editable[1]	Value set[2]	Value project assigned	Wild card allowed[3]
Planned coverage	Y	N	Y	N	N	-	N
Requirement name	Y	N	N	Y	N	-	Y
Requirement short description	Y	N	N	Y	N	-	Y
Requirement ID	Y	N	N	N	N	-	Y
Owner	Y	Y	N	Y	Y	Y	N
Updater	Y	Y	N	Y	Y	Y	N
Created, Updated	Y	N	Y	N	N	-	-
Requirement attributes	Y	Y	N	Y	Y	Y	Y

[1] Yes, if operators IN, NOT IN are selected
[2] Yes, if a set of values can be selected
[3] Yes, if editable is Yes.

Table 2- Attributes meanings

The user can write free text that may also contain wildcards like

"*" any number of characters

"?" any single character

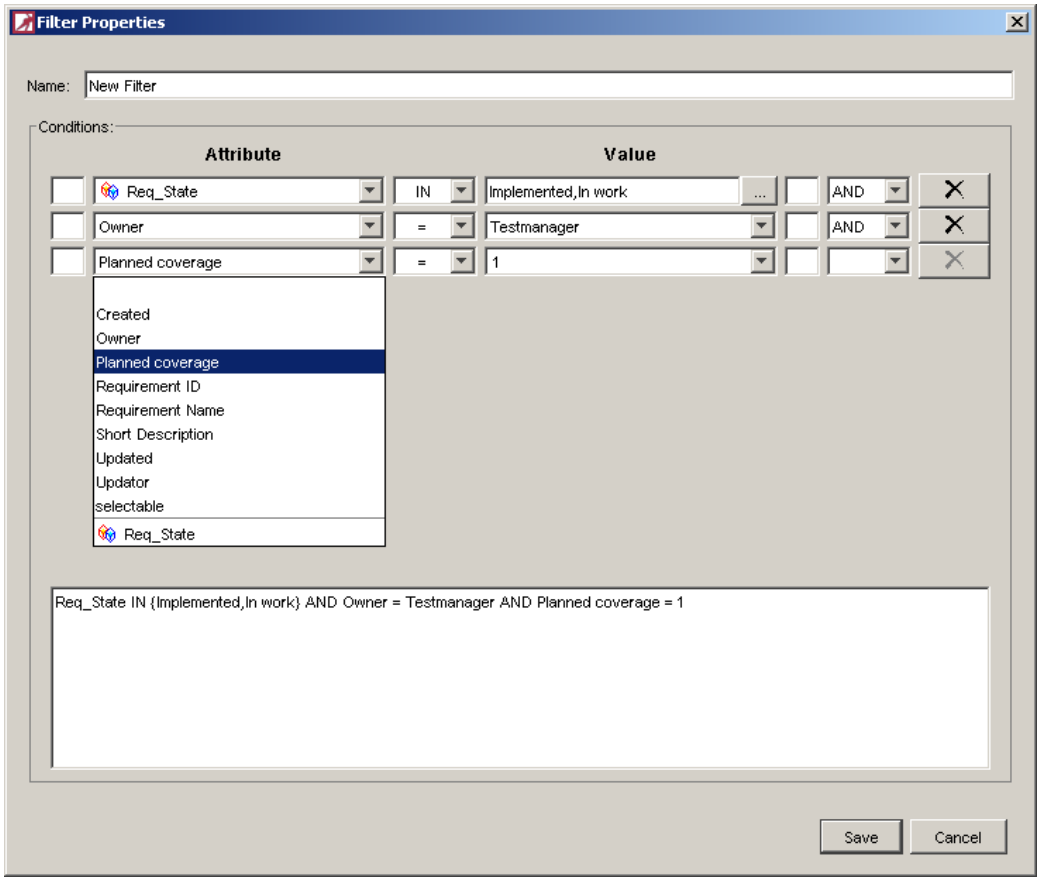


Figure 74 - Filter criterion

2.14.8Export filter

It is possible to export filters to XML and import them again. When either activating the menu **Filter->Export** or pressing the button "**Export selected filters to XML**" Figure 75 is displayed and the filter can be saved.

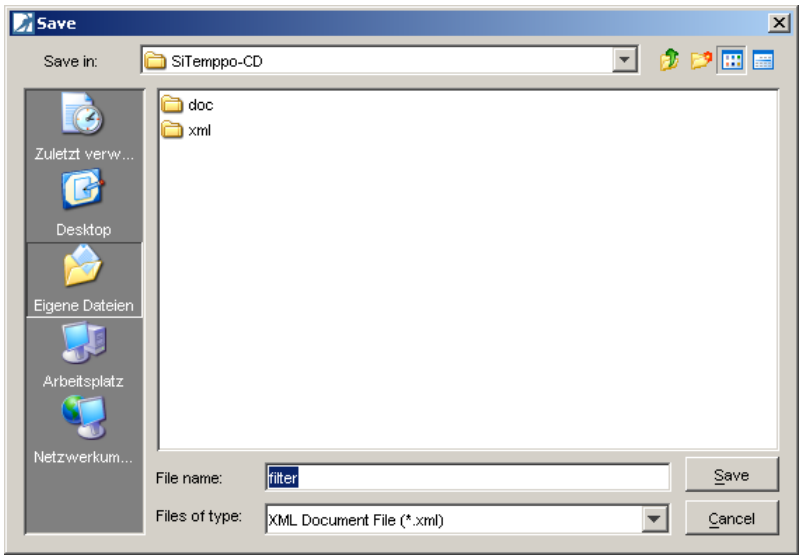


Figure 75 - Export dialog

2.14.9Import filter

It is possible to import filters from XML either directly by pressing the button "**Import filter from XML**". A filter import is rejected, if the filter contains specific requirement attributes that are not assigned to the requirement structure the filter is imported to. An error message is displayed where the names of the NOT imported filters are listed.

The filter contents are checked and the import is only successful, if the attributes match the ones of the selected requirement structure. If the filter is not syntactically correct, the import is cancelled and the user gets an information message.

2.15 Evaluation

2.15.1Analysis

The analysis feature is used to give you a quick overview about your requirement structure. You create an analysis chart by selecting the node to analyze and activating **Evaluation > Analyse.** In the Analysis dialog you can set values for X – Axis and group values on the Y - Axis. The following charts for displaying the data are possible:

- **Horizontal bar chart**
- **Horizontal bar chart (3D)**
- **Line chart**
- **Stacked horizontal bar chart**
- **Stacked horizontal bar chart (3D)**
- **Stacked vertical bar chart**
- **Stacked vertical bar chart (3D)**
- **Vertical bar chart**
- **Vertical bar chart (3D)**

For x-axis you can select

- **Created**
- **Owner**
- **Planned Coverage**
- **Updated**
- **Updator**
- **Self defined requirement attributes**

There is also the possibility to save the chart as .jpg or .png file by pressing the button `Save As…` Figure 76 shows an analysis from a requirement structure, displaying the number requirement for a requirement attribute "Requirement_state".

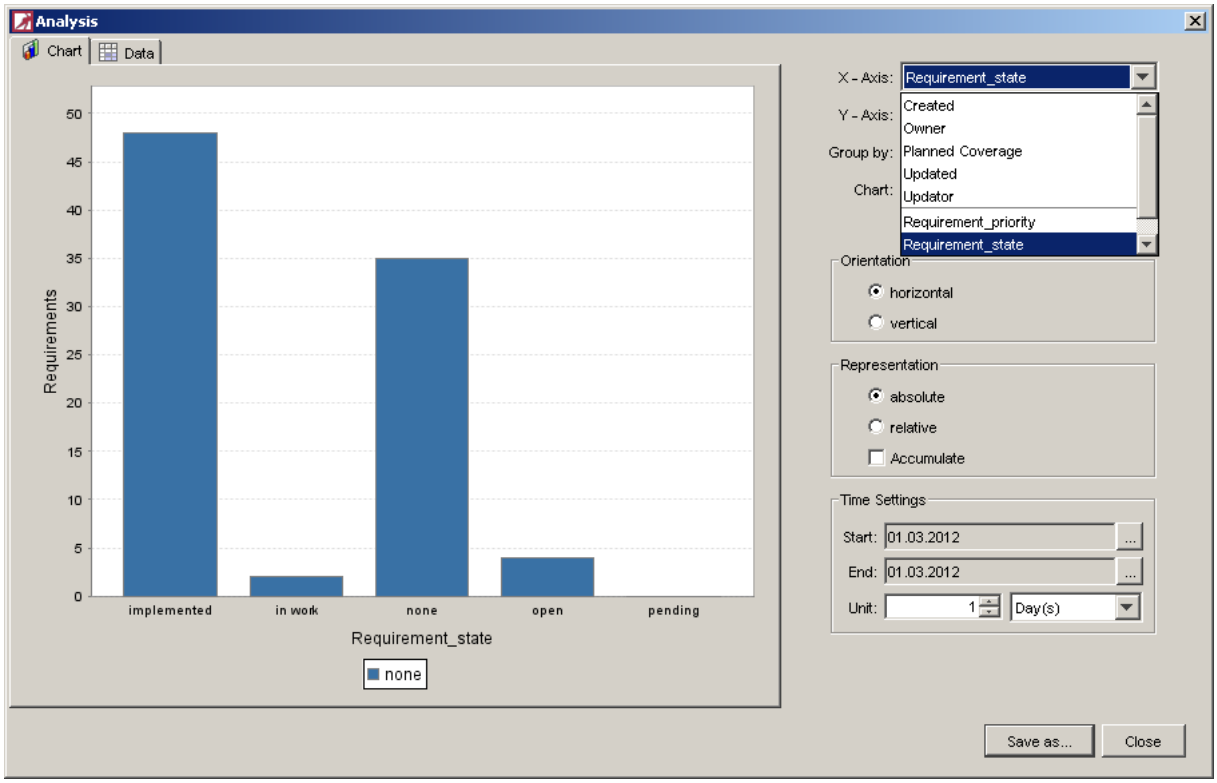


Figure 76 - Requirement structure analysis, x-axis = requirement attribute

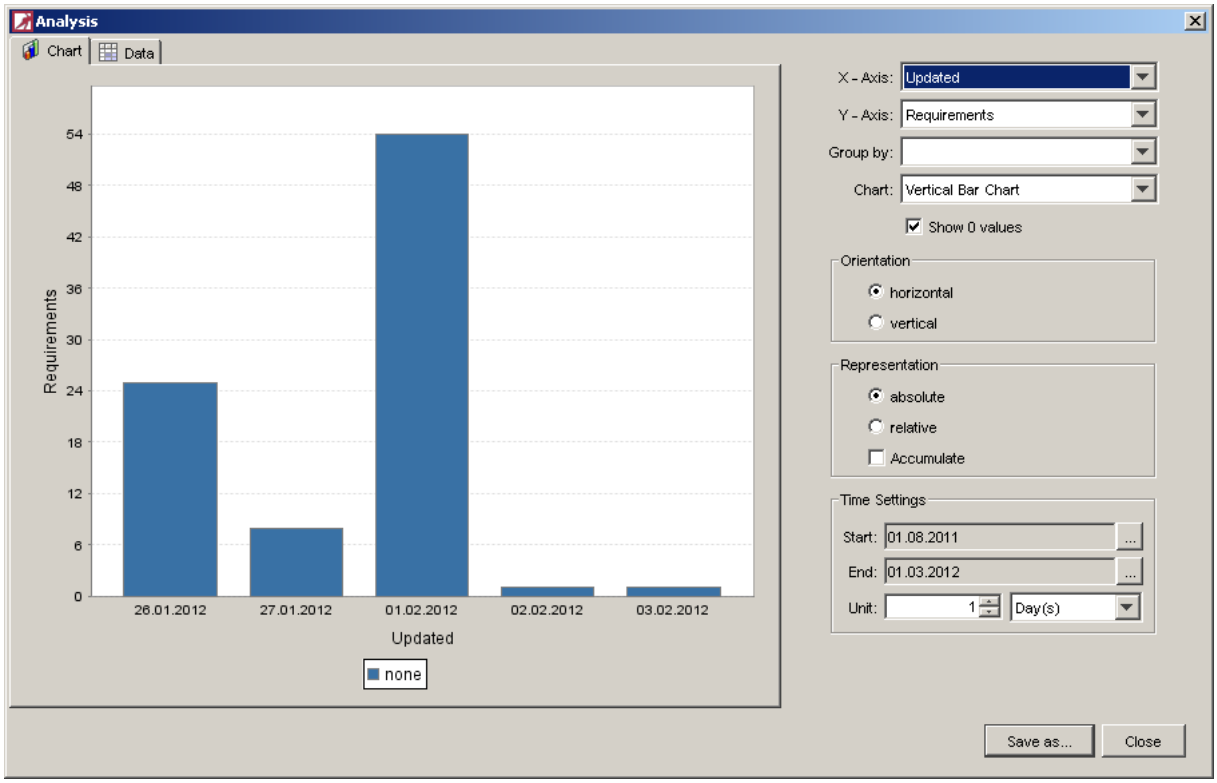


Figure 77 - Requirement analysis, x-axis = Updated

2.15.2Progress Chart

The progress chart feature is used to give you a quick overview about deltas of requirement structure versions. You can view the progress from one to the next or more versions.

You create a progress chart by selecting the root node and activating **Evaluation > Progress Chart.** By selecting the button **Select Versions** Figure 78 is displayed where you have to select at least 2 versions to be compared.

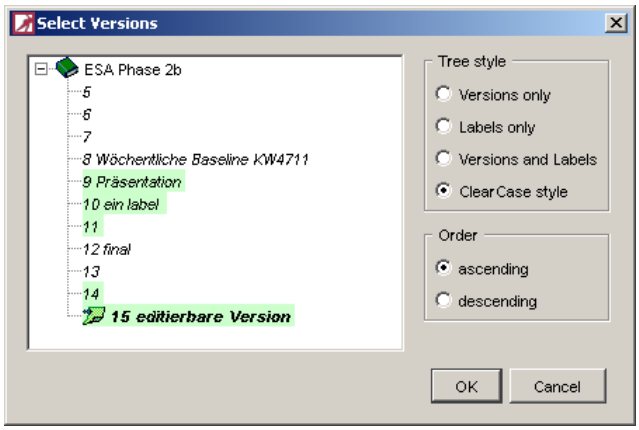


Figure 78 - Select versions

After pressing OK the window is closed and Figure 79 is shown.

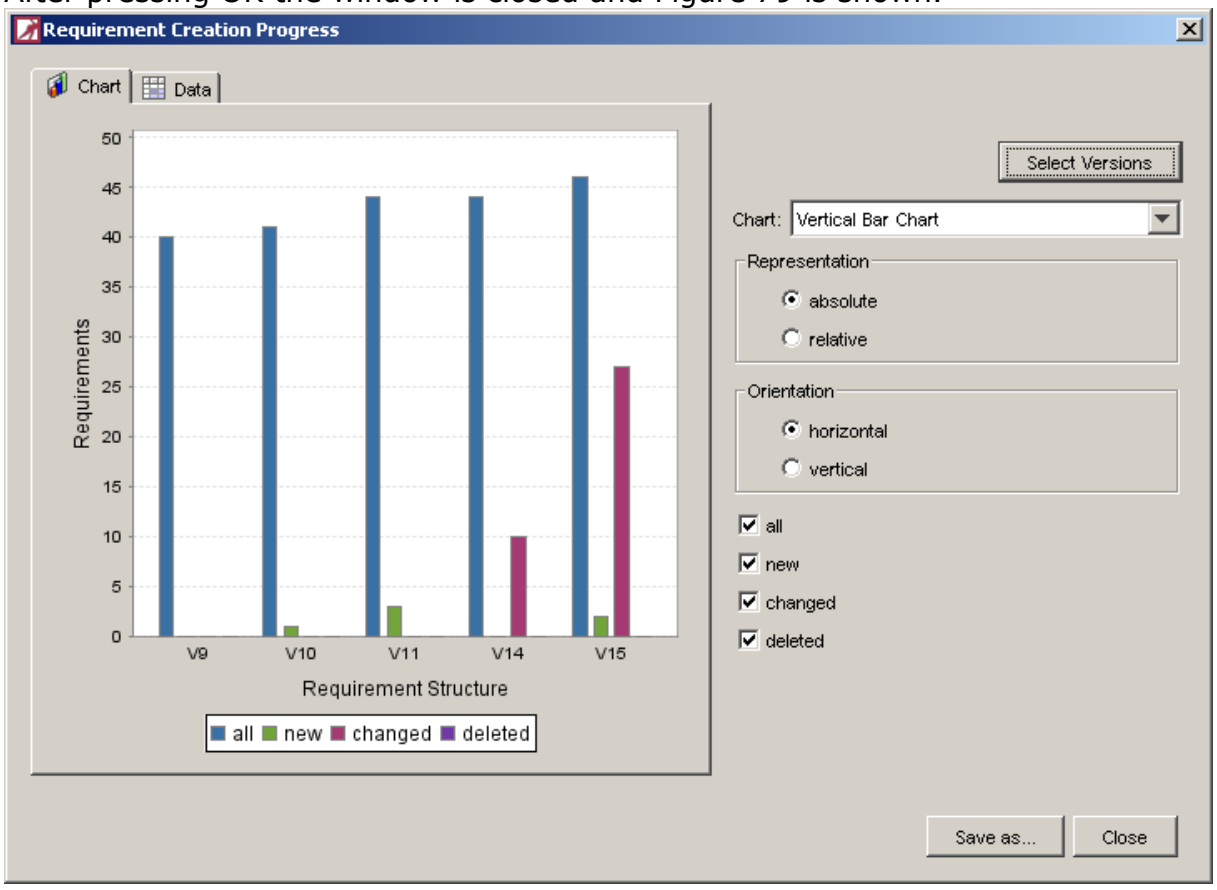


Figure 79 - Requirement creation progress

2.15.3 Reporting

TEMPPO Requirement Manager offers a reporting feature, which allows you to create flexible textual and graphical reports from your requirement structures. A requirement structure report can be created from any node within the structure, even from a single requirement **(Evaluation > Report Selected...)**.

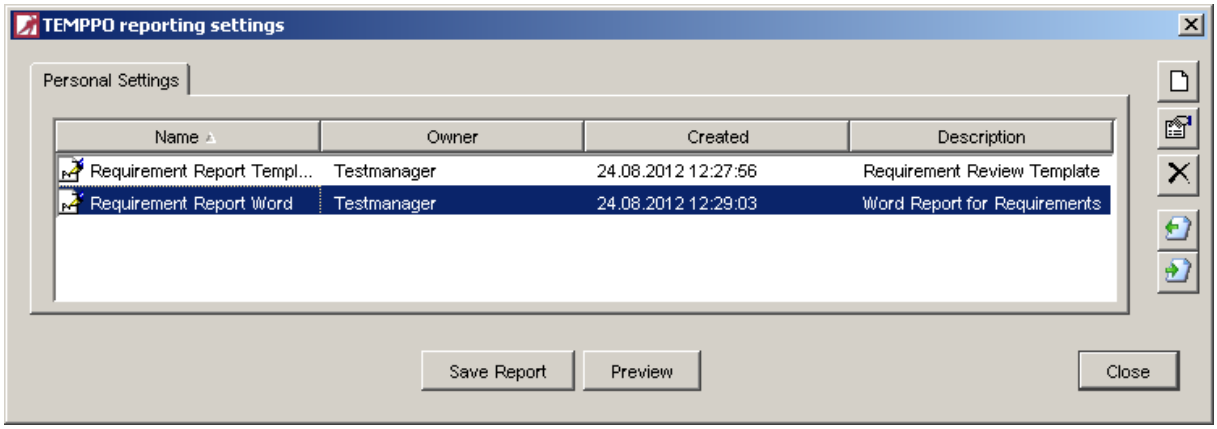


Figure 80 – Report settings

With the buttons on the right side, you can add change and remove settings:

New / Edit

see 2.15.3.1

Delete

Setting(s) are deleted.

Import from XML or TRP

see 2.15.3.3

Export to XML file

see 2.15.3.4

With the buttons below, you can save the report to a directory or create a preview. After Pressing **Save Report**, a file dialog opens where the directory has to be defined and then the report is created.

2.15.3.1 New / Edit

When pressing the button **New** or **Edit** a new window opens to set the properties for creating a report.

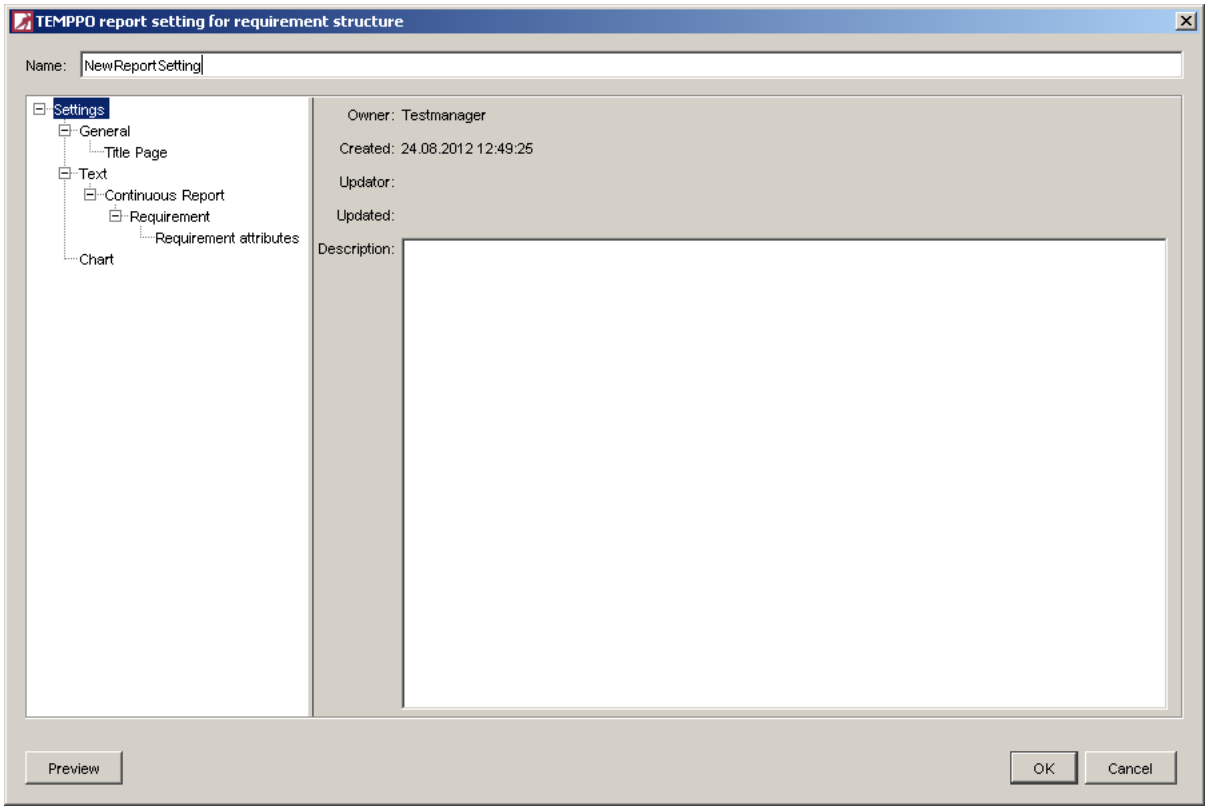


Figure 81 – Report settings overview

The report functionality is divided into four main setting areas, where each of them is subdivided into several parts. The areas are described in the following chapters.

2.15.3.1.1 General

In the general settings area you define the rough layout and contents of your report.

Components

Here you choose the components your report shall contain. Dependent on your selection the tree is changed for doing the relevant settings. The following components are available

- **Title Page**
- **General Information about Test Structure**
- **Text**
- **Chart**

Additionally, you have to select the **Layout:**

Continuous or **Tabular**

and the **Format** for the report:

HTML, Microsoft Word or **Microsoft Excel**

If the format is Microsoft Word, a template file can be defined (loaded) for e.g. header and footer in your report.

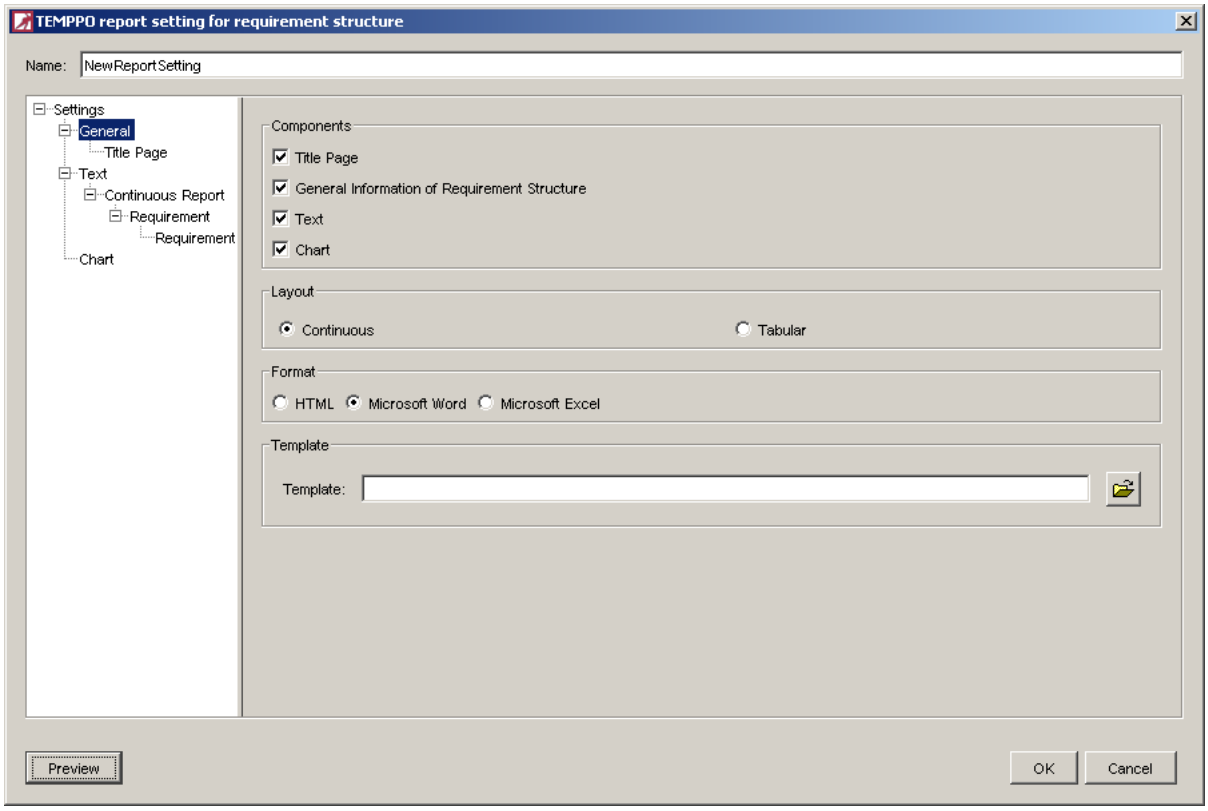


Figure 82 – Reporting: Load template file

There is the restriction that you must save the dot file as xml. TEMPPO supports only the XML format.
If Microsoft Excel is selected, then you can define a header and a footer within the settings (see Figure 84).

Please, consider that Microsoft Word limits the width of pages to 22 inches (http://support.microsoft.com/?scid=kb%3Ben-us%3B95109&x=14&y=10)

Title Page

Here you can customize the title page of your report. The **Title page** can contain a **title**, a **project name**, a **status**, the **nam**e of the **author** and the **current date**. You can also specify if the label should be visible.

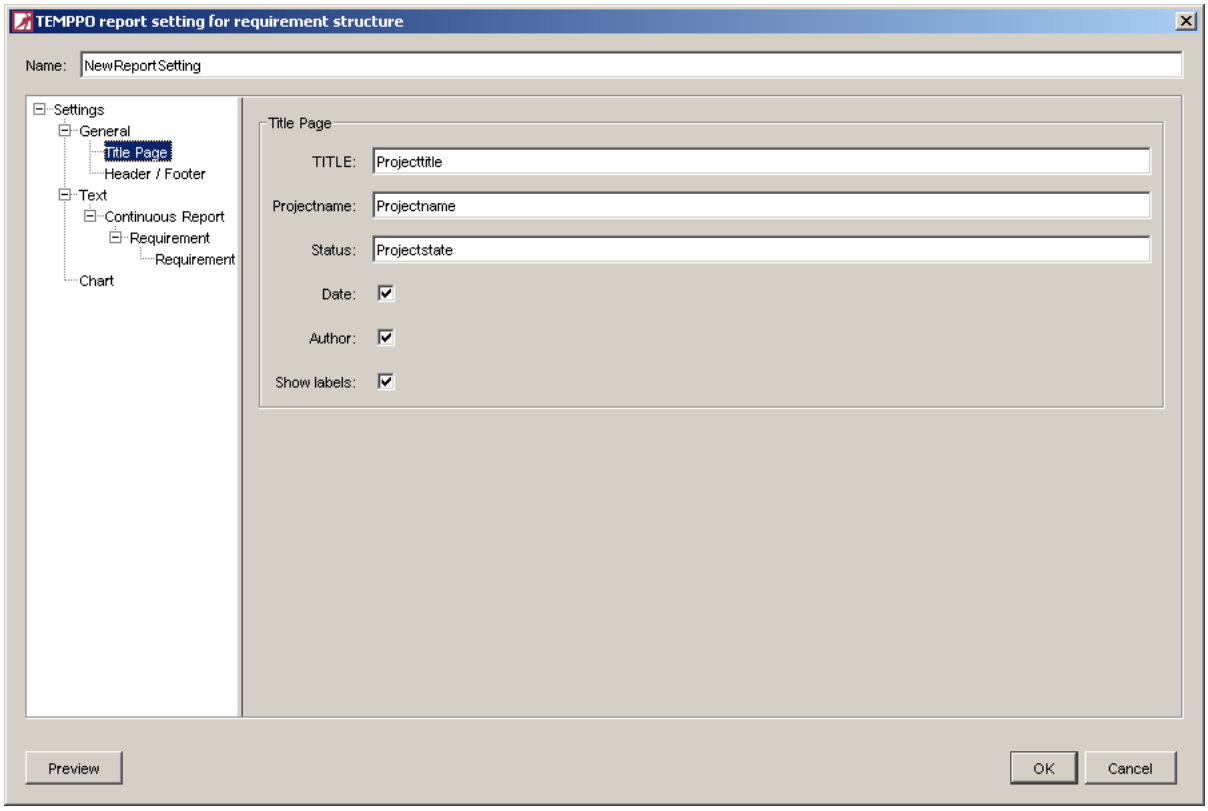


Figure 83 – Reporting: Title Page

Header / Footer

You can customize the header and footer for your report. There are buttons for using the defined keys for **page number, date, time** etc.

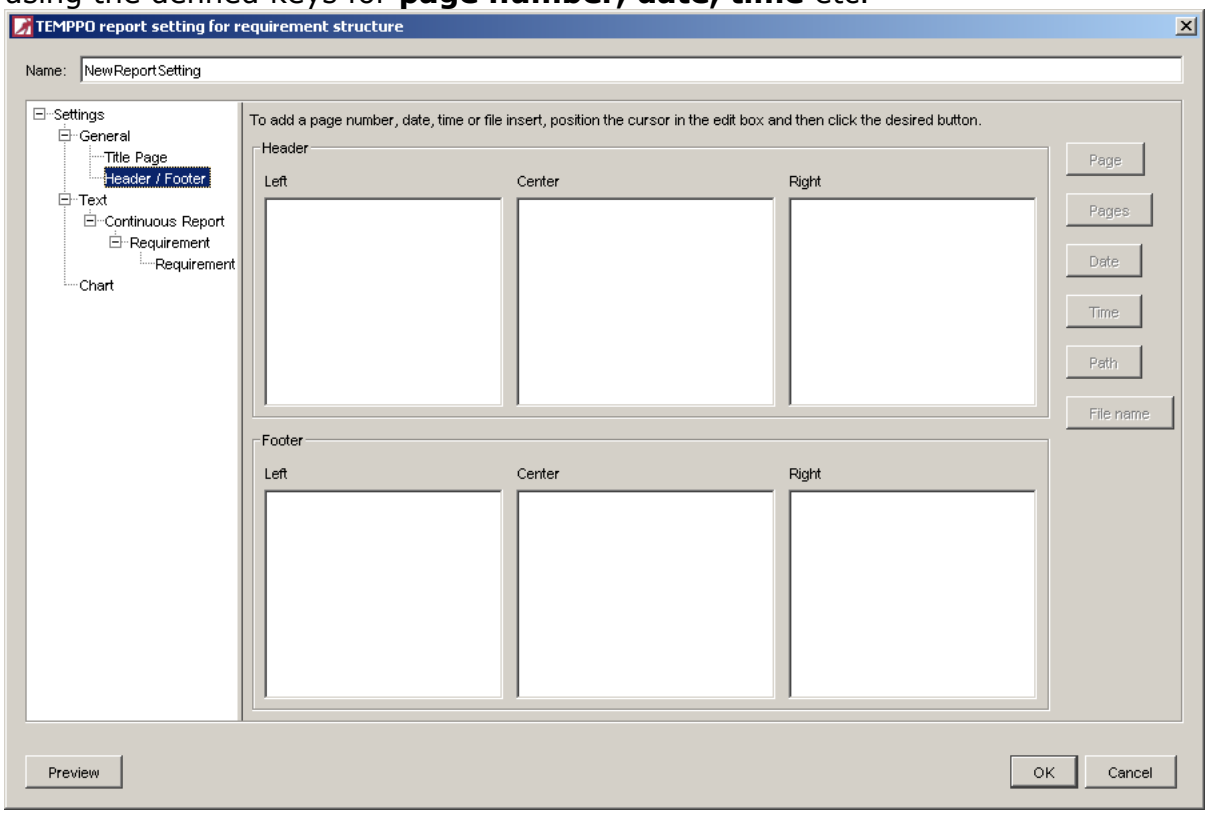


Figure 84 – Reporting:Header / Footer

2.15.3.1.2 Text

The text settings are relevant for the textual data contained in your report and also for how they are displayed.

General Text Settings:

First, you can choose the **Layout** if you want your data displayed in continuous text or table format.

Furthermore you can set **Format options:**

- (Do not) ignore information fields with empty values
- (Do not) generate heading numbers
- You can limit the size of your report by defining the depth absolutely. You can use the slider to limit the reported requirement structure tree depth to a fixed level.

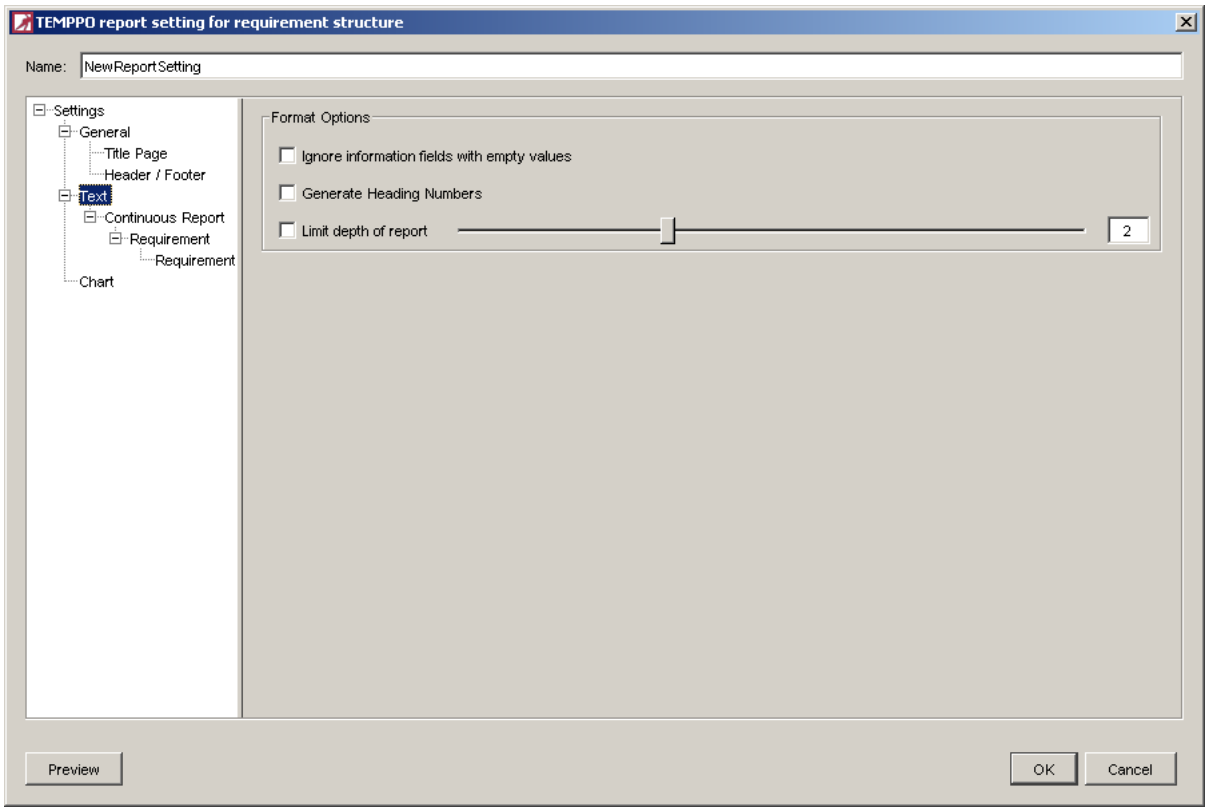


Figure 85 – Reporting: General Text Settings

Continuous Report: Requirement, Requirement Attributes

You can specify which data your report shall contain. With multi selection mode, you can "move" several values to the right part of the window.

If you don't want to show which attributes your requirement has, deactivate the checkbox above the list.

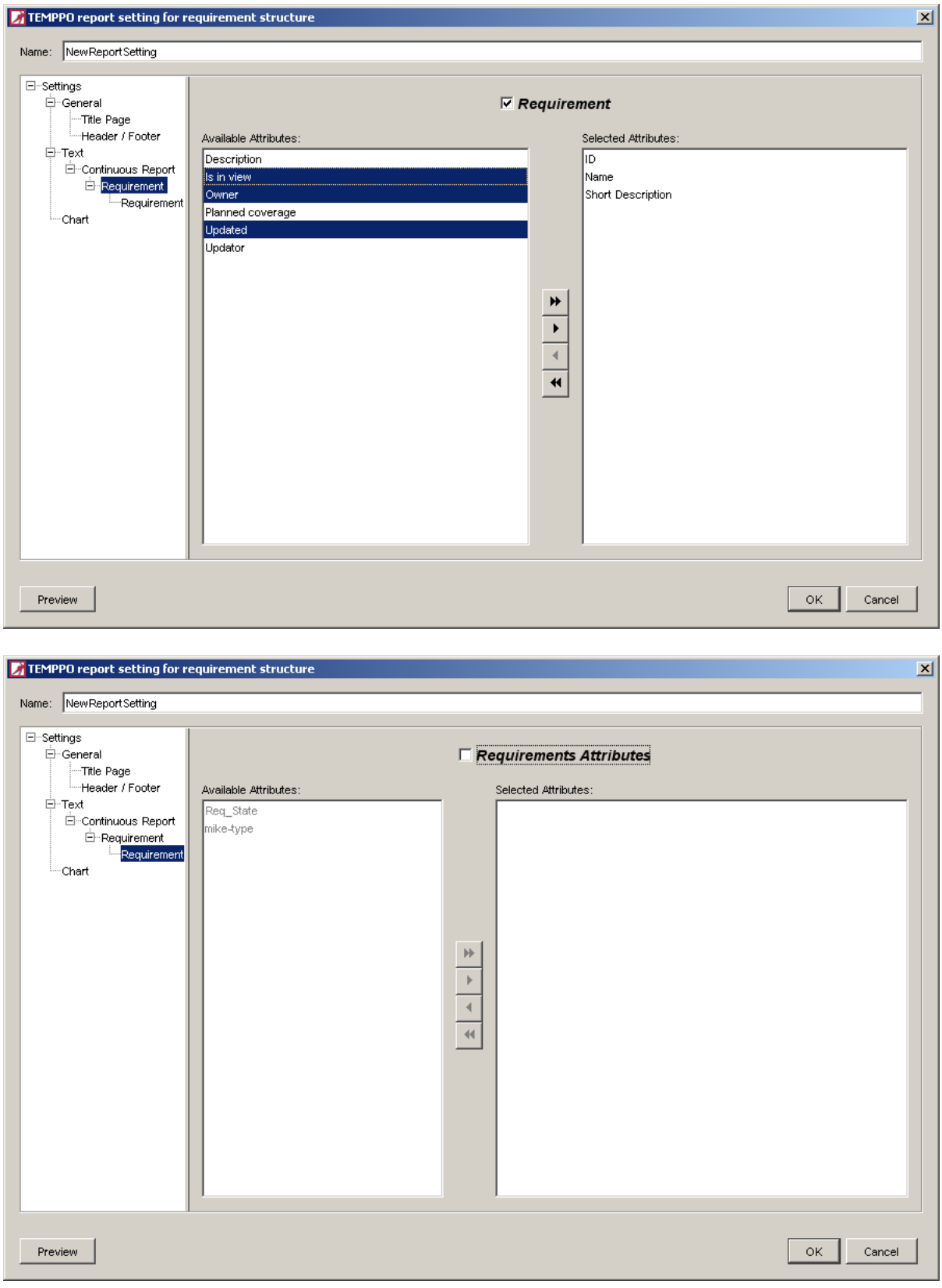


Figure 86 – Reporting: Textual Settings

Tabular Report:
You can specify the sequence of the columns by swapping the column headers and for defining the width of the columns in the report you have to move the border of the columns.

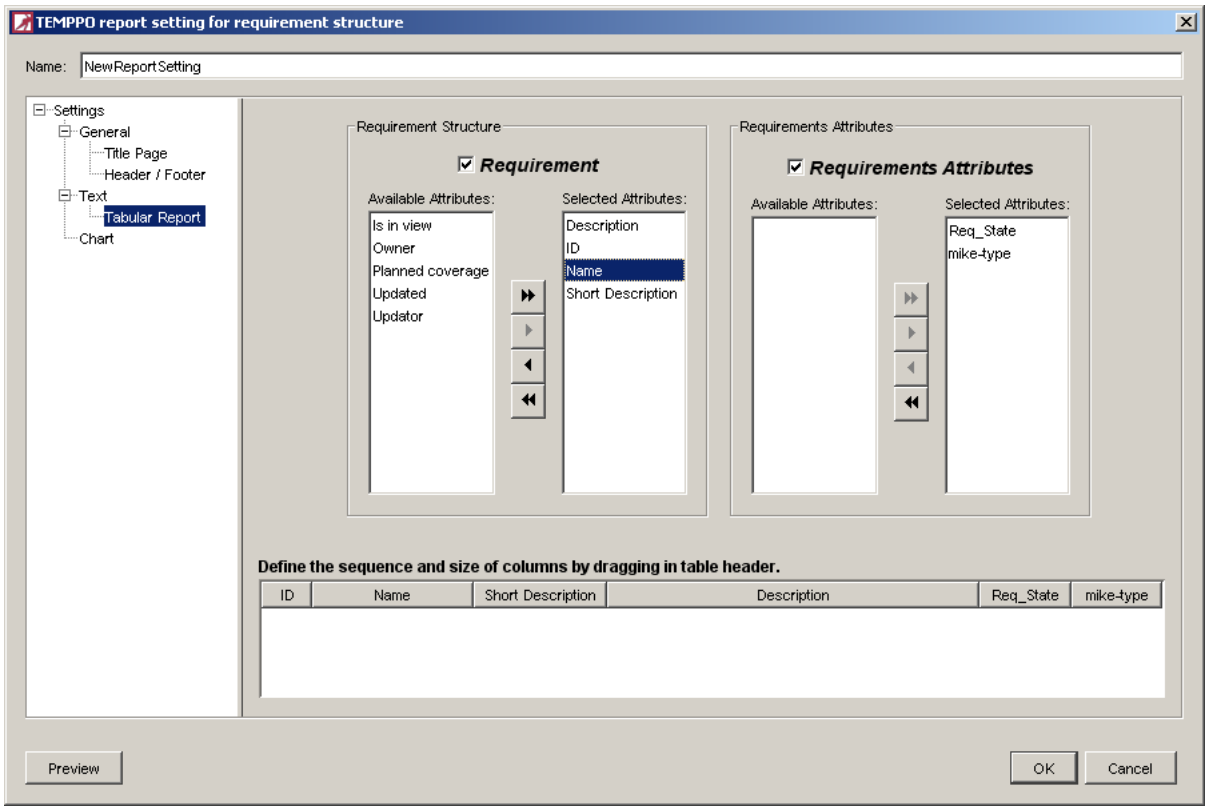


Figure 87 – Reporting:Tabular Report

2.15.3.1.3 Chart Settings

In the chart settings area you can customize the chart added to your report, which represents the data of your test structure or your test suite in a graphical way.

Data Selection:

Choose units for the x- and y- axis and optionally a value subdivision.

Orientation:

You can choose the orientation of the labels in the x-axis.

Representation:

Data can be represented absolutely or relatively. If *Accumulate* is activated, data on y-axis is displayed accumulated.

Time Settings:

If you select in x-axis and/or Group by a date / time attribute, you can configure the chart by setting a start and an end date. Additionally the units (days, weeks, months or years) can be set.

For detailed description of charts see 2.15.1

2.15.3.2 Previewing and Saving

You can either **Preview** the report that will be generated or immediately **Save** it to a HTML-, Word- or Excel-file.

2.15.3.3 Import from XML

For importing report settings, press the button **Import report setting from XML or TRP file** and then the following file dialog opens:

In the file dialog you can set the type of file to .xml. After selecting a file and pressing open, report setting is imported to TEMPPO.

2.15.3.4 Export to XML

For exchange you can export your report settings to an XML file. Press the button **Export report setting to XML file** and then a file dialog opens. After selecting the path and file name, press **Save**. Then the file is exported to XML.

2.16 Multi user ability

Multi user ability establishes an environment for working with several users in a parallel way on the same requirement structure. It prevents unintentional overriding of changes, manages the synchronization between viewed and stored data and avoids inconsistency, if multiple users work on the same database. Moreover it provides features to facilitate the collaboration in a team working on the same TEMPPO requirement structure.

Chapter 2.16.1 describes the behavior when locking and editing an item. On the other hand chapter 2.16.8 illustrates the 2 possibilities of refreshing (manual, automatic).

ⓘ **Multi user ability is not supported for MS Access databases.**

2.16.1 Lock modes

TEMPPO provides 2 possibilities of locking items (requirements):

- **Manual lock**
- **Automatic lock**

If you are working with manual lock mode, you always have to press the button "Lock" before having the exclusive right to work on that item.

On the other hand you simply have to select an item and it is automatically locked, if another user does not lock it.

This feature can be configured when activating the menu **Windows -> Settings**.

ⓘ **The following chapters are describing the locking in manual mode!**

2.16.2Edit

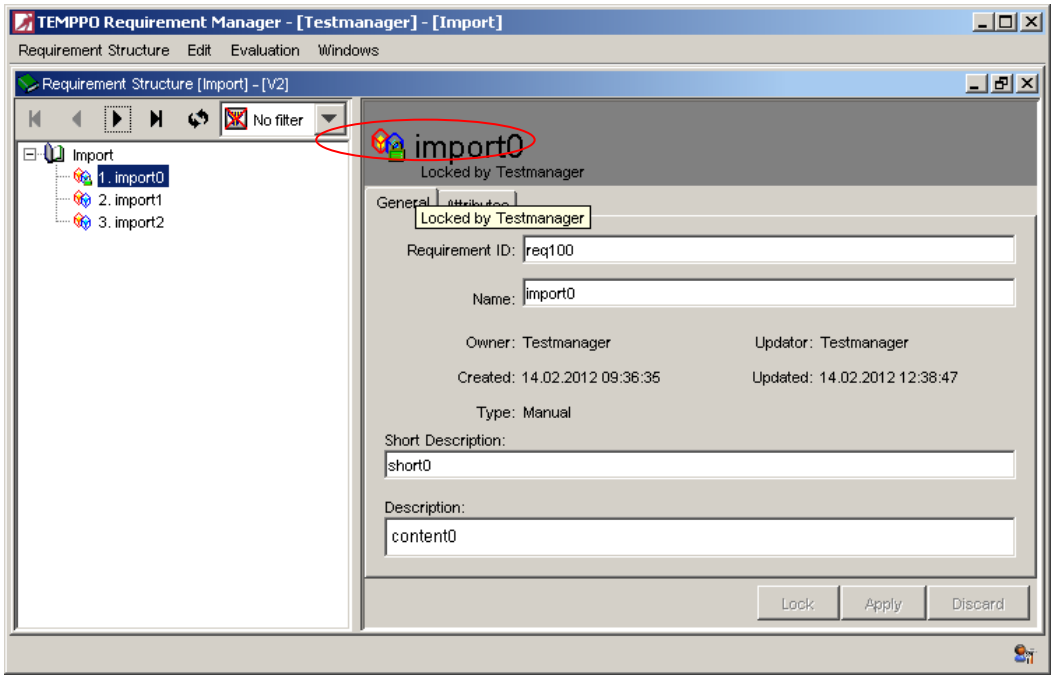


Figure 88 - Lock state

After locking the requirement you can edit the selected requirement.

2.16.3Find locks – unlock

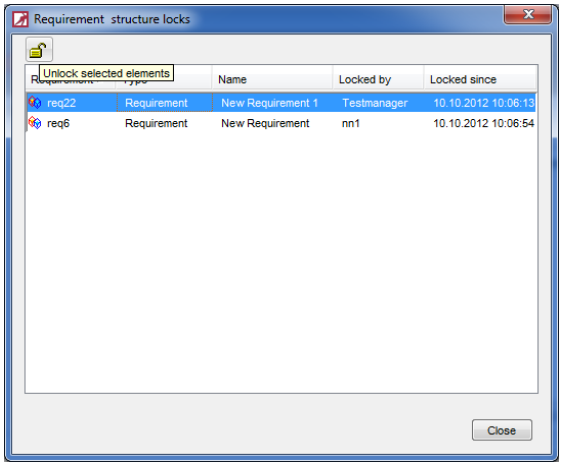


Figure 89 - Requirement structure - Find locks

In principle TEMPPO RM only user locks are possible. The following items can be locked:

- Requirement
- Requirement structure (root)
- Version

Locks can be found either in the requirement structure or test suite

- Requirement structure:
  When activating the menu item **Find locks** (menu requirement structure), Figure 89 is displayed. By selecting one or more locks and pressing the button **Unlock selected elements** locks can be removed.

If the user still believes in his locked items and presses the button **Save**, he will get the following message, that the lock has been removed in the meantime.

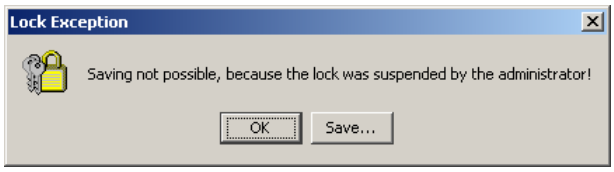


Figure 90 - Lock deletion message

When closing the window by pressing **OK**, he can only discard his changes!

2.16.4Show a lock state

The locking state of the item is shown by:

Special padlock icon (green: locked by the current user, yellow: locked by another user).

Tool Tip "Locked by <user>"

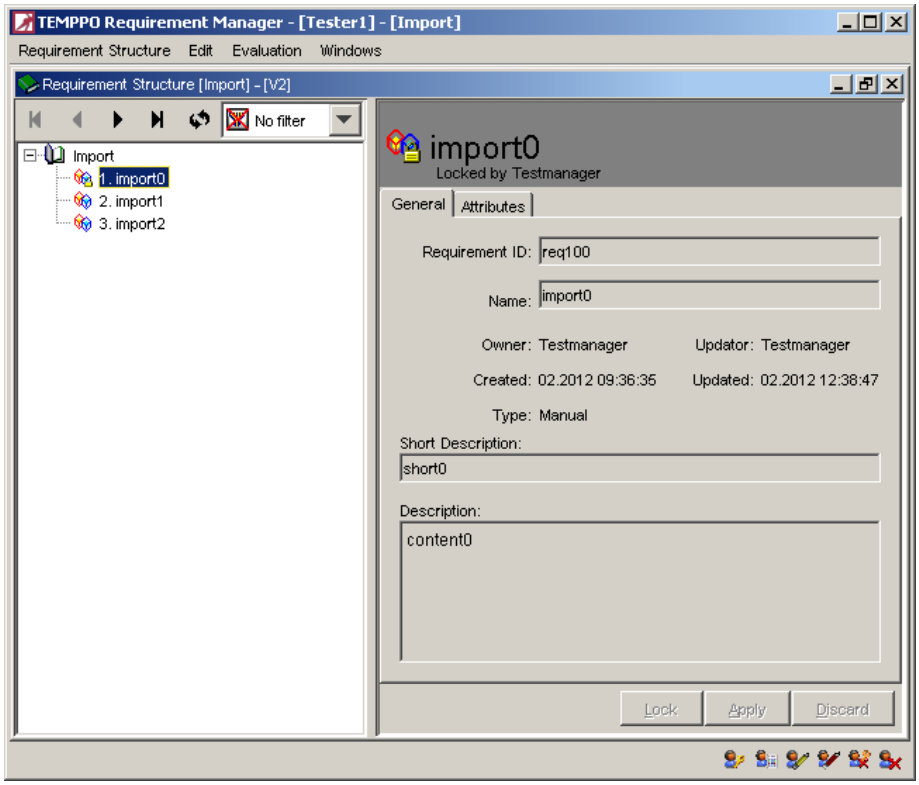


Figure 91 - Lock button

2.16.5Change an item

Before you can change an item, you have to press the button **Lock** (see Figure 91). If the locking was successful, the item can exclusively be changed by you. The lock is automatically released if you:

- select another item
- apply / discard changes

If locking wasn't successful after pressing the **Lock** button, you will get a dialog. If the reason was that another user has deleted the item in the meantime, the item is removed from the tree and Figure 92 is shown. Reload the whole requirement structure.

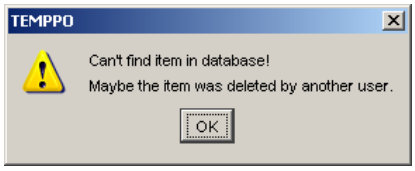


Figure 92 - Item not found information

2.16.6 Delete an item

If you try to delete an item, which itself or any of its children is locked, you will get a dialog (see Figure 93) and you cannot perform this deletion. Moreover the item and all children are refreshed, so you can see which one is locked.

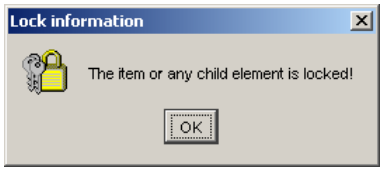


Figure 93 - Child element locked

2.16.7 Find invalid locks

On starting and quitting TEMPPO Requirement Manager, the whole database is checked for any locks which were set by you. Normally there should be no one left. But if there is one (see Figure 94), this is an invalid lock, which can have two reasons: Your last TEMPPO session terminated abnormally (crash etc.). If so, you should confirm the dialog by pressing "Yes" to remove all invalid locks.

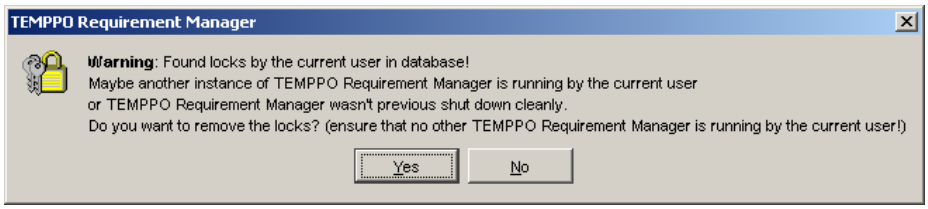

TEMPPO Requirement Manager
Warning: Found locks by the current user in database!
Maybe another instance of TEMPPO Requirement Manager is running by the current user
or TEMPPO Requirement Manager wasn't previous shut down cleanly.
Do you want to remove the locks? (ensure that no other TEMPPO Requirement Manager is running by the current user!)
Yes
No

Figure 94 – Locks found in the database on starting/quitting TEMPPO Requirement Manager

2.16.8 Refresh

2.16.8.1 Refresh manually

2.16.8.1.1 Reloading the whole requirement structure

You can reload the whole requirement structure by pressing the reload button on top of the tree (see Figure 95). This has the same effect as manually reopening the requirement structure.

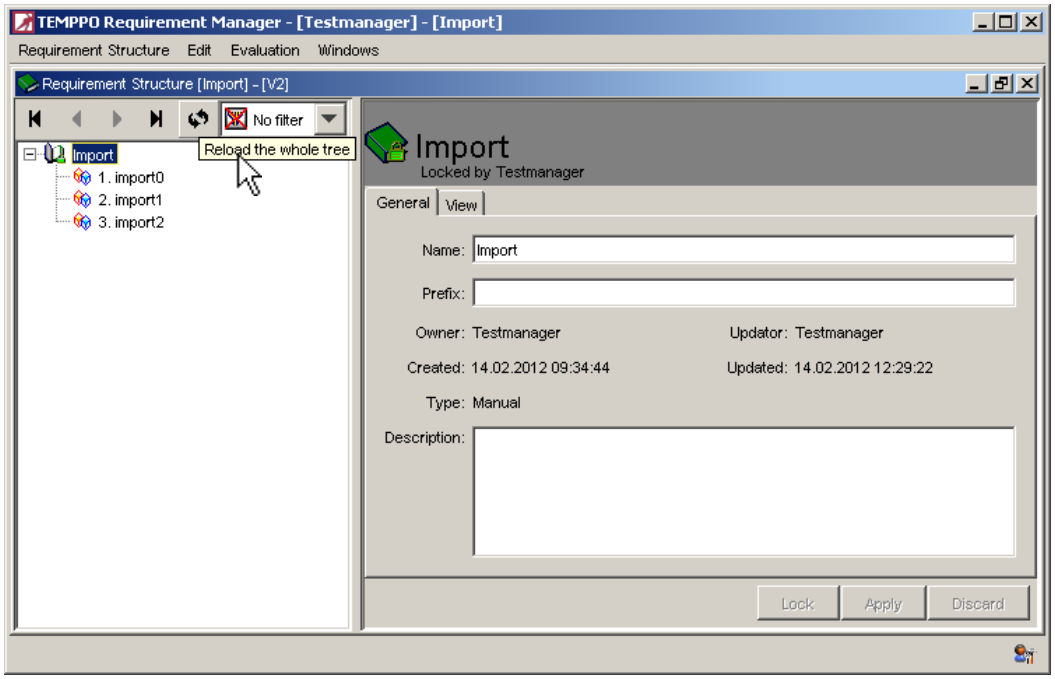


Figure 95 - Button Reload for reloading the whole tree

2.16.8.1.2 Refresh recursively

You can refresh an item including all sub-items by selecting the "refresh recursive" function in the context menu (see Figure 96).

Attention: The selected item with all sub-items will be *completely* (re)loaded from the database, so it may take a long time.

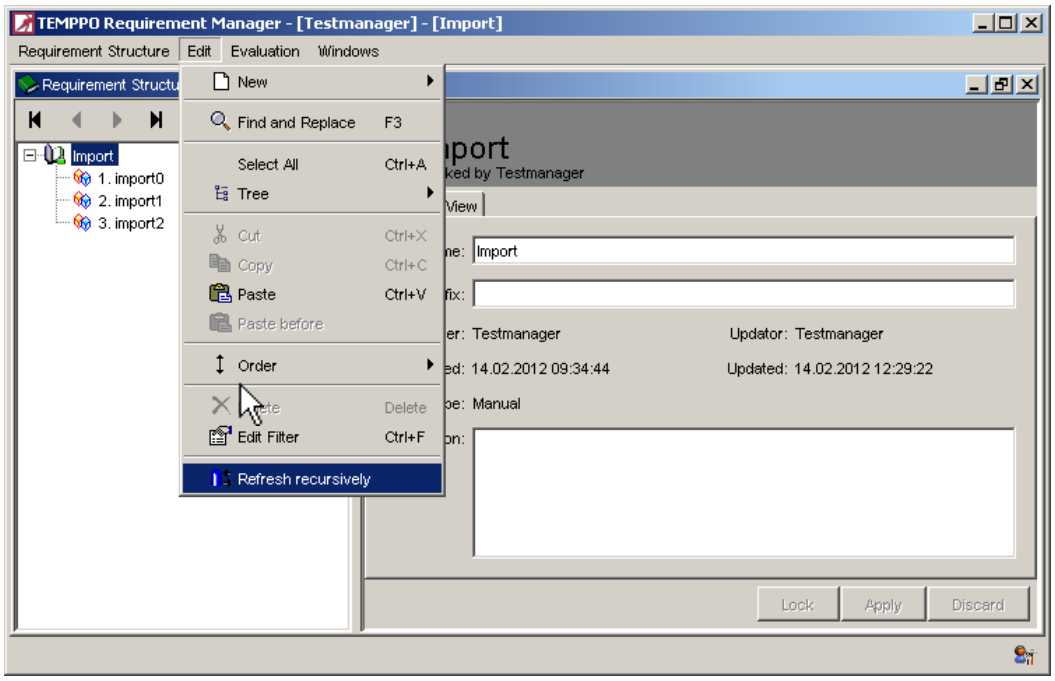


Figure 96 - Refresh recursive menu (also in the context menu)

2.16.8.1.3 Refresh on certain user actions

An item is automatically refreshed (including its lock state and the presence of all direct children) after the following actions:

- selecting in the tree view

- pressing the `Lock` button

If these actions are done on an actually deleted item, the following dialog is shown and the item is removed from the view.

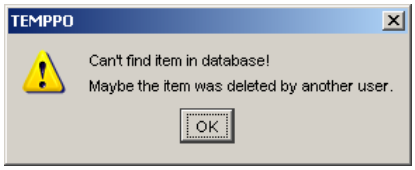


Figure 97 - Deleted item information (after trying to select or to lock)

2.17 General principles

2.17.1 Multi-selection

TEMPPO offers a feature for multi select requirements.
The multi-selection mode can be used for:

- Deleting requirements
- Cutting requirements
- Copying requirements
- Assigning attributes to requirements

When the multi-selection mode is activated the items aren't locked automatically. They are only locked during the time for saving. If items are locked by other users the changes are not applied to these items. They are displayed in a list.

The multi-selection mode is activated when more than one item is selected.
If a user selects at least 2 items, the right side (=detailed view) is completely empty.

The user can only activate the multi-selection mode when he has the right.

A multi-selection can be done by using different keys:

- Select all

For selecting all, press <Ctrl> and <A>. The user can also activate the context menu Select All (Figure 98) or the menu item Edit → Select All.

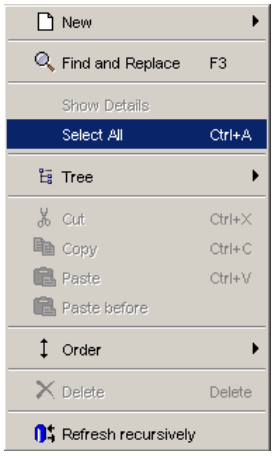


Figure 98 – context menu – "Select All"

Requirement can be selected with <Ctrl> or with <Shift>. After pressing "**Select all**" all sub trees of the requirements are marked.

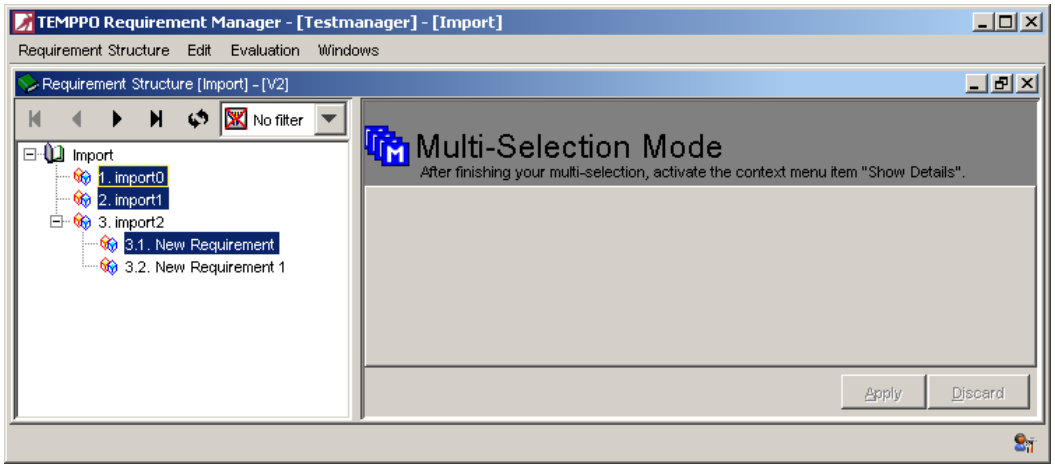


Figure 99 - Multi selected items

By clicking context menu all possible actions are provided to the user.

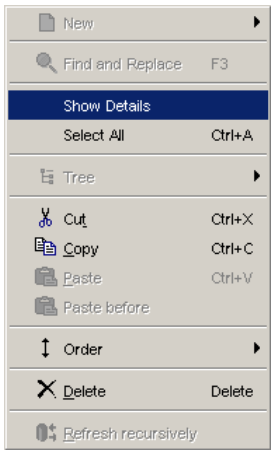


Figure 100 - Context menu

For selected items attributes can be assigned or deleted.

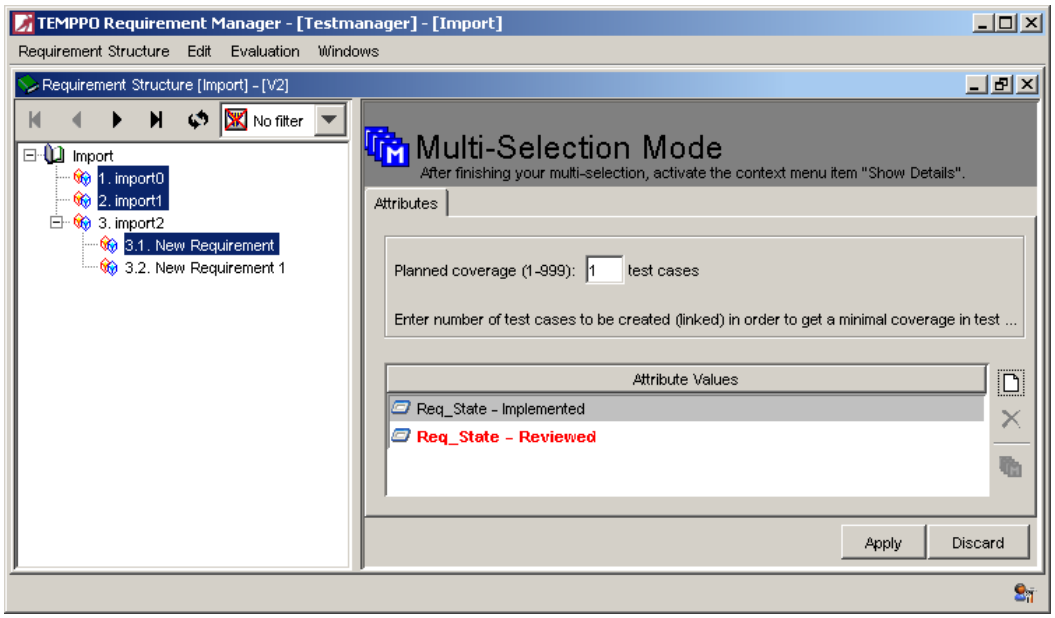
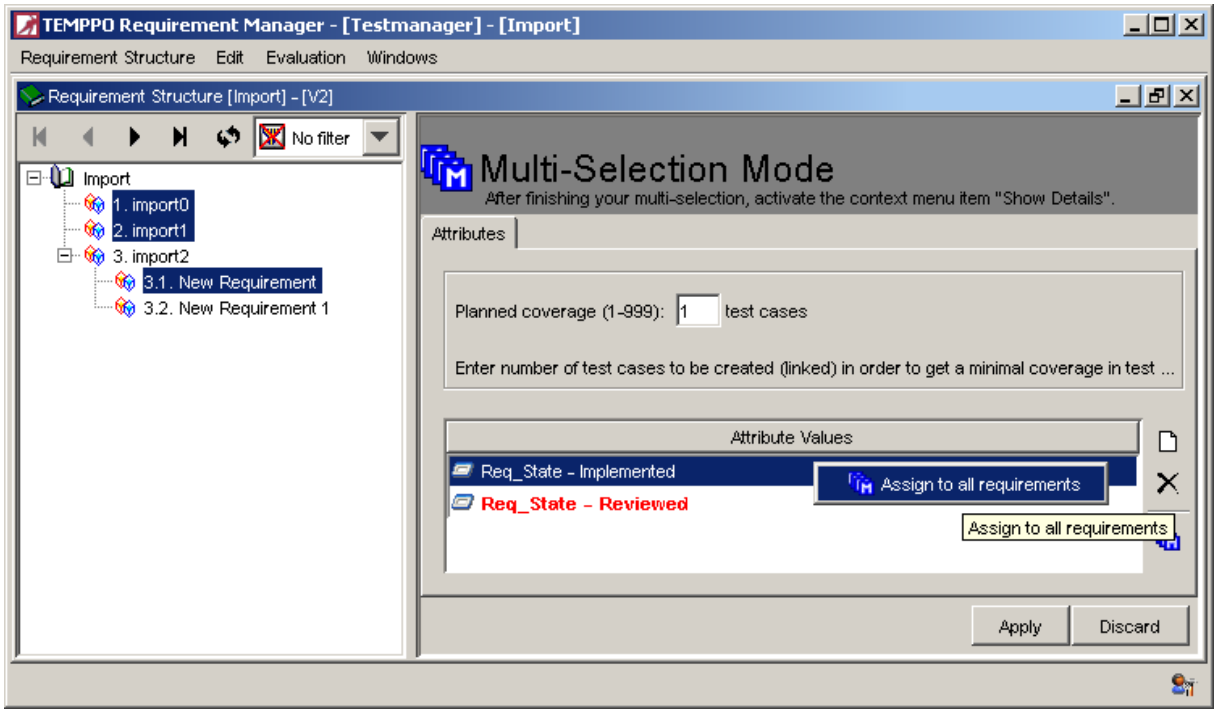

TEMPPO Requirement Manager - [Testmanager] - [Import]
Requirement Structure Edit Evaluation Windows
Requirement Structure [Import] - [V2]
No filter
Import
1. import0
2. import1
3. import2
3.1. New Requirement
3.2. New Requirement 1
Multi-Selection Mode
After finishing your multi-selection, activate the context menu item "Show Details".
Attributes
Planned coverage (1-999): 1 test cases
Enter number of test cases to be created (linked) in order to get a minimal coverage in test ...
Attribute Values
Req_State - Implemented
Req_State - Reviewed
Apply
Discard

Figure 101 - Assigning attributes

The color "grey" means that the attribute value is only assigned to a subset of the selected requirements. On right mouse click the menu "**Assign to all requirements**" can be called.


TEMPPO Requirement Manager - [Testmanager] - [Import]
Requirement Structure Edit Evaluation Windows
Requirement Structure [Import] - [V2]
No filter
Import
1. import0
2. import1
3. import2
3.1. New Requirement
3.2. New Requirement 1
Multi-Selection Mode
After finishing your multi-selection, activate the context menu item "Show Details".
Attributes
Planned coverage (1-999): 1 test cases
Enter number of test cases to be created (linked) in order to get a minimal coverage in test ...
Attribute Values
Req_State - Implemented
Assign to all requirements
Req_State - Reviewed
Assign to all requirements
Apply
Discard

2.17.2Hyperlinks and Uploads

Generally you can mark text as

- Hyperlink to the web
- Hyperlink to a file
- Hyperlink to an upload

2.17.2.1 Create hyperlinks

Hyperlinks to the web, to the file system and to upload can be created for the text field **Description** (requirement structure, requirement).

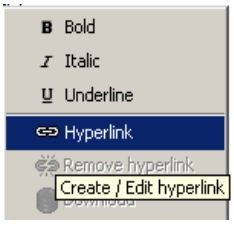


Figure 102 - Menu hyperlink

For creating a hyperlink it is necessary to select at least one character in editable text fields and activate the context sensitive menu **Hyperlink** (see Figure 102), which opens the Hyperlink window (see Figure 103).

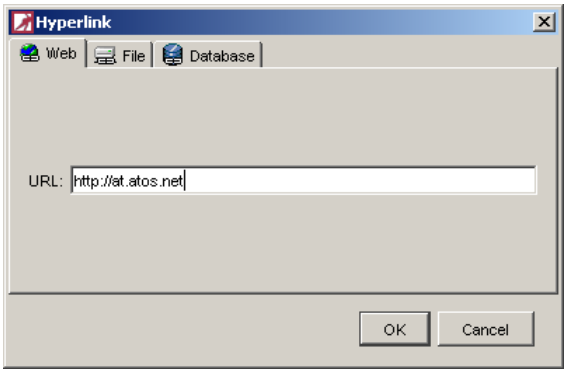


Figure 103 - Hyperlink to the web

You have the possibility to enter a link to the web (specified by an HTTP address) or to the file system (see Figure 104).

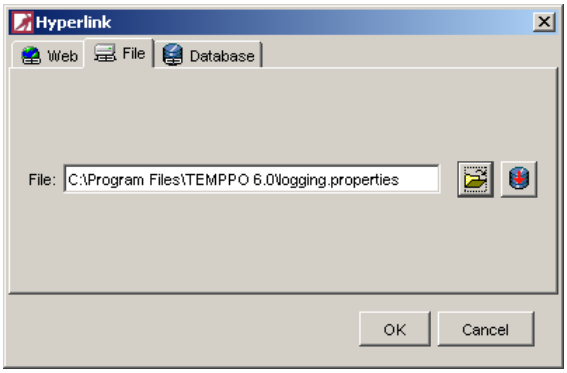


Figure 104 - Hyperlink to the file system

In case of changing drive letters, moving file shares and other similar problems it may be better to upload the files to the database. For referencing an upload you have 2 possibilities: you can upload a new file or use an existing one and create a reference on it. The philosophy of this concept is to upload a file only once and create more references on it (if necessary).

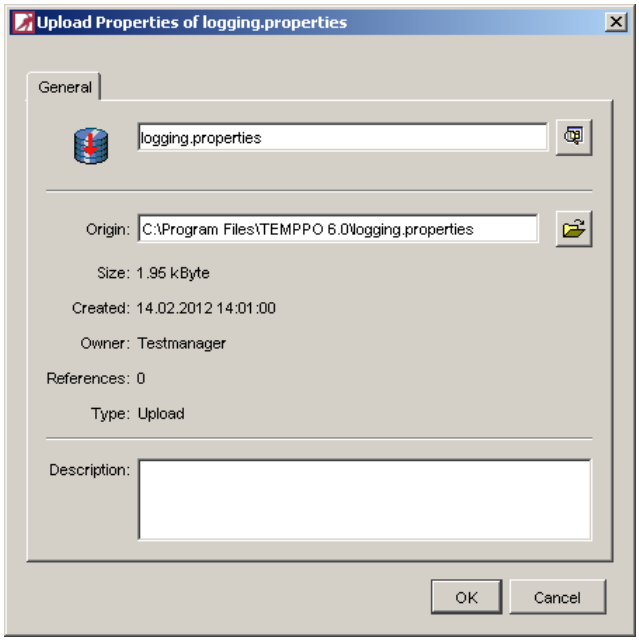


Figure 105 - Upload properties

Upload a new file: You have to activate the `Upload` button to open Figure 105 for specifying a special `name` and `description`. Additionally `owner`, `creation date`, `size`, the number of `references` and the `type` are displayed.

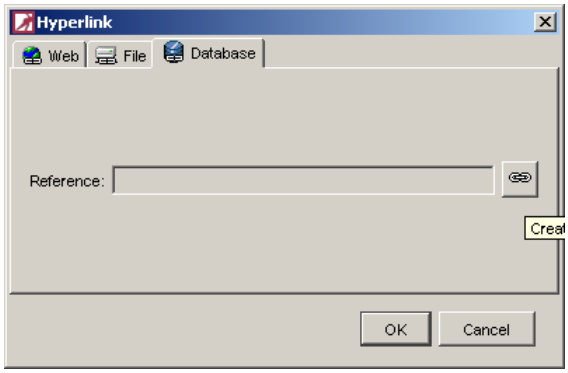


Figure 106 - Hyperlink database

Use an existing upload: You have to activate tab `database` and press button `create reference to uploaded file` to open Figure 107, which shows all uploads of the database. For creating a new reference on an existing upload you simply have to select it and click `OK` in Figure 107 and Figure 106.

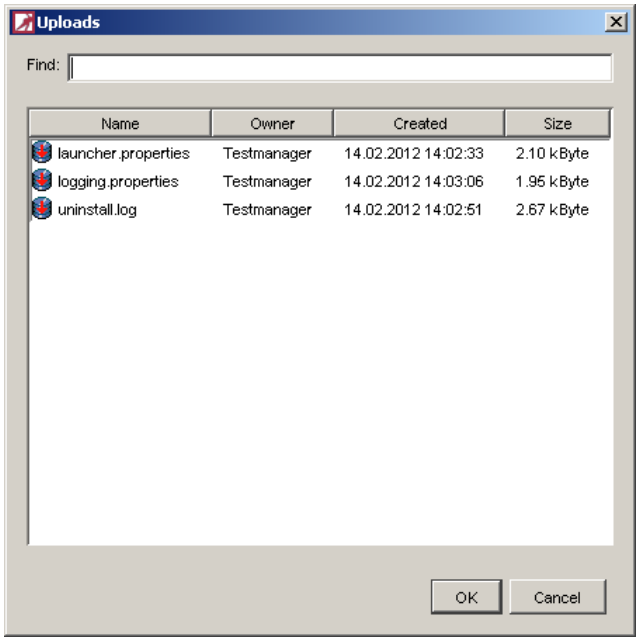


Figure 107 - Uploads

The upload limit of a file is set to 0.5 MB by default and is specified in the file admin.properties (dbsettings.upload.limit=500000). But it is only information. Of course, you can upload files that exceed that limit and/or change this value in admin.properties.

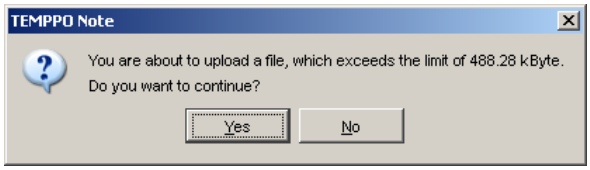


Figure 108 – File size exceeds the upload limit

2.17.2.2 Edit hyperlinks

If you select a hyperlink (web, file system, upload) and activate the context sensitive menu (mouse over hyperlink) and choose the menu **hyperlink,** Figure 104 is shown, where you can change the

- link into the web
- link into the file system
- upload

2.17.2.3 Remove hyperlinks

If you select a hyperlink (web, file system, upload) and activate the context sensitive menu (mouse over hyperlink) and choose the menu **remove hyperlink**, the hyperlink is removed. But take care that an upload remains in the database.

To remove obsolete uploads, see user manual (administrator) chapter 5.5.5

2.17.2.4 Download

If you select a hyperlink (upload) and activate the context sensitive menu (mouse over hyperlink) and choose the menu **download**, Figure 109 is shown to select a directory for the file download.

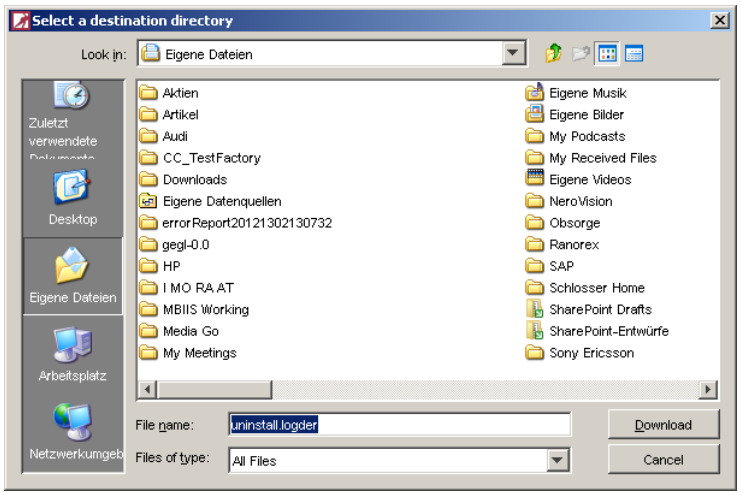


Figure 109 - Destination selection

2.17.3Applying / Discarding

When working with requirement structures, you can save your changes within requirements using the button **Apply**.

By pressing button **Discard**, your changes will be undone after a confirmation message. The buttons are only enabled, if the selected node has been changed since it was loaded.

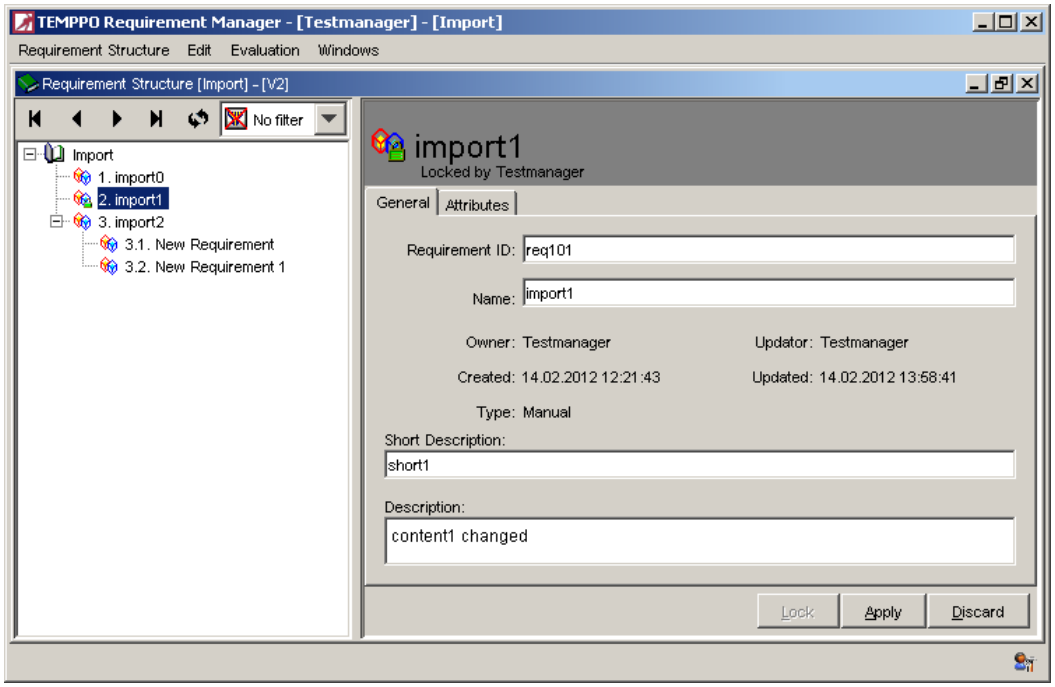


Figure 110 - Apply / Discard

2.17.4Find and Replace

TEMPPO offers a find and replace mechanism. With the menu item **Edit > Find and Replace** Figure 111 is shown.

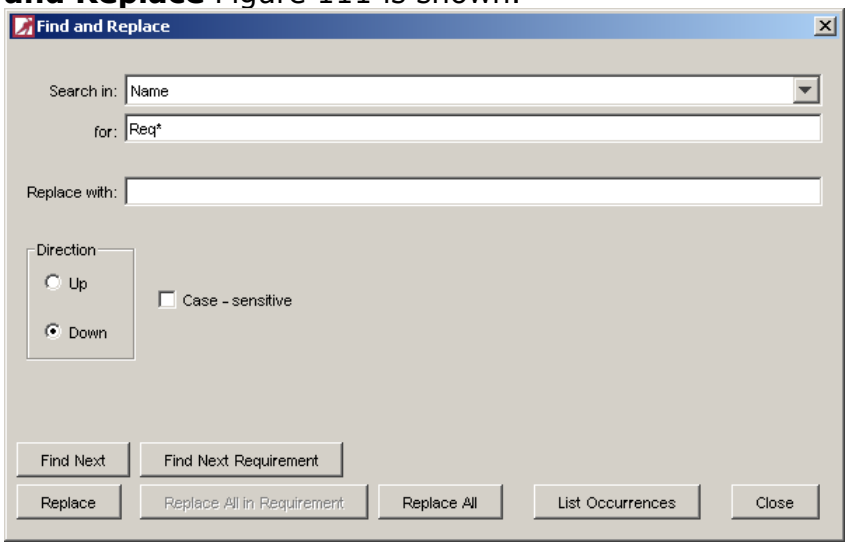


Figure 111 – Find and Replace

A requirement can be found via searching for its user defined ID, name, short description or description. The search criteria can be specified using the wildcards * (0..n arbitrary characters) or/and ? (Exactly one arbitrary character) and is case sensitive.

The replace function searches for the requirement and then the searched part will be replaced to the entered name. The replace function is available for name, short description and description.

Example:

You want to change the name of the requirements. The part "Requirement" should be changed to the German name "Anforderung", so you select "Name" in **Search in:** and write in the text field **for:** "Requirement". In the **Replace with** – text field you write "Anforderung".

A searching direction can be chosen, too. The searching algorithm starts from the selected node in the tree. Is the tree root selected, the whole tree is searched whatever direction is selected.

2.17.4.1 Find

There are two possibilities for finding requirements:

- Find Next: With clicking `Find Next` the first requirement is searched and selected in the tree. With the next click, the next one is searched. If there is no element (anymore) a message is shown (see Figure 112).

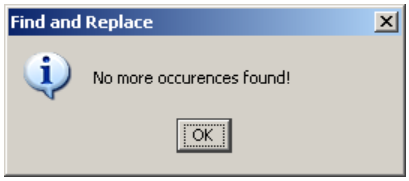


Figure 112 – No more occurrences found

- List occurrences: With the button **List occurrences** the searching result is shown in a list (see Figure 113). When clicking a requirement in the list, it's selected in the tree.

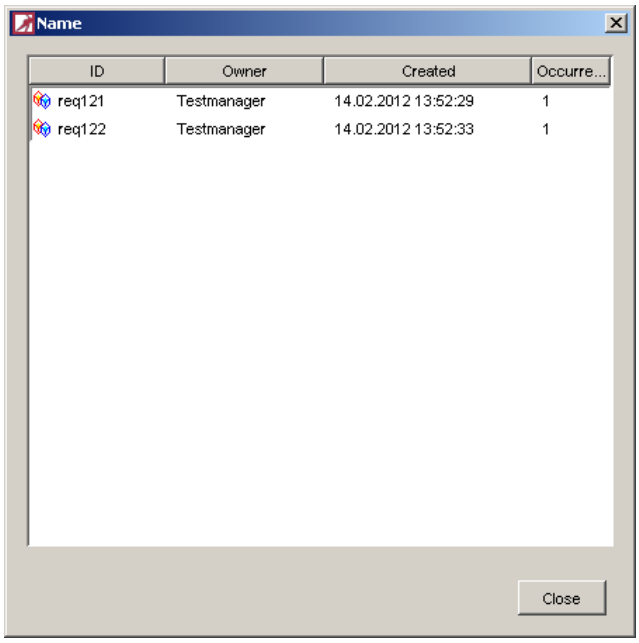


Figure 113 – List occurrences

2.17.4.2 Replace

There are also two possibilities for replacing:

- **Replace**: At first a requirement is searched and selected. The user has to click again for replacing the field and then searching the next one. If the requirement is locked, the requirement isn't changed, i.e. the next requirement is searched.
- **Replace All**: The selected field of all requirements is changed which contains the text. After replacing all, a message is shown (see Figure 114) with the number of replaced requirements and number of requirements which couldn't be replaced, because of locks, etc.

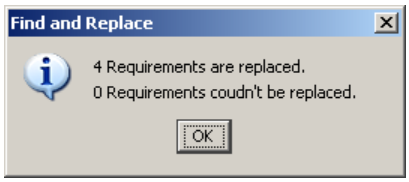


Figure 114 – Replace result

The replace – functionality is disabled, if the user has not the right for changing requirements.

2.17.5Settings

TEMPPO differs between global and application specific settings.

2.17.5.1 Global Settings

For global settings please refer to /1/ - chapter Settings

2.17.5.2 Specific Settings

Specific settings e.g. tree display, etc. can be configured in the settings dialog in TEMPPO Requirement Manager. This dialog is opened via **Windows > Settings**. On the left side, there is a tree where the user can select the setting group which should be configured. Above the tree there is a "fast search" field for more efficient navigation. Enter a (sub)string a all matching settings are shown.

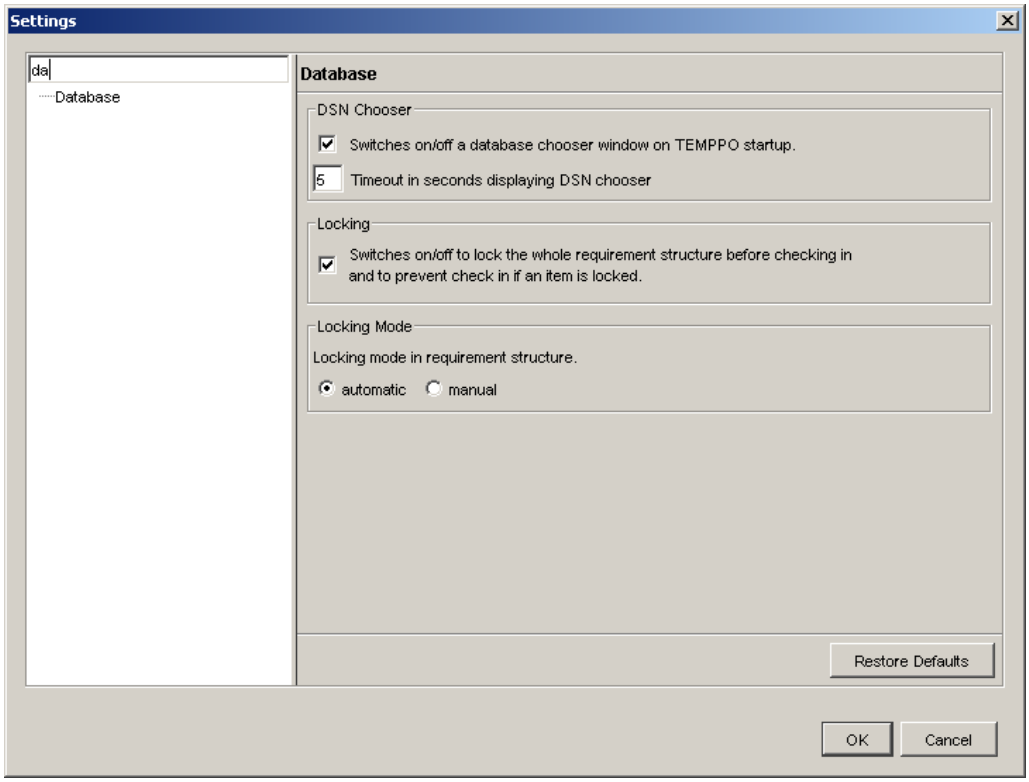


Figure 115 - Settings - Fast search

On the right side all single settings can be edited (see Figure 116).

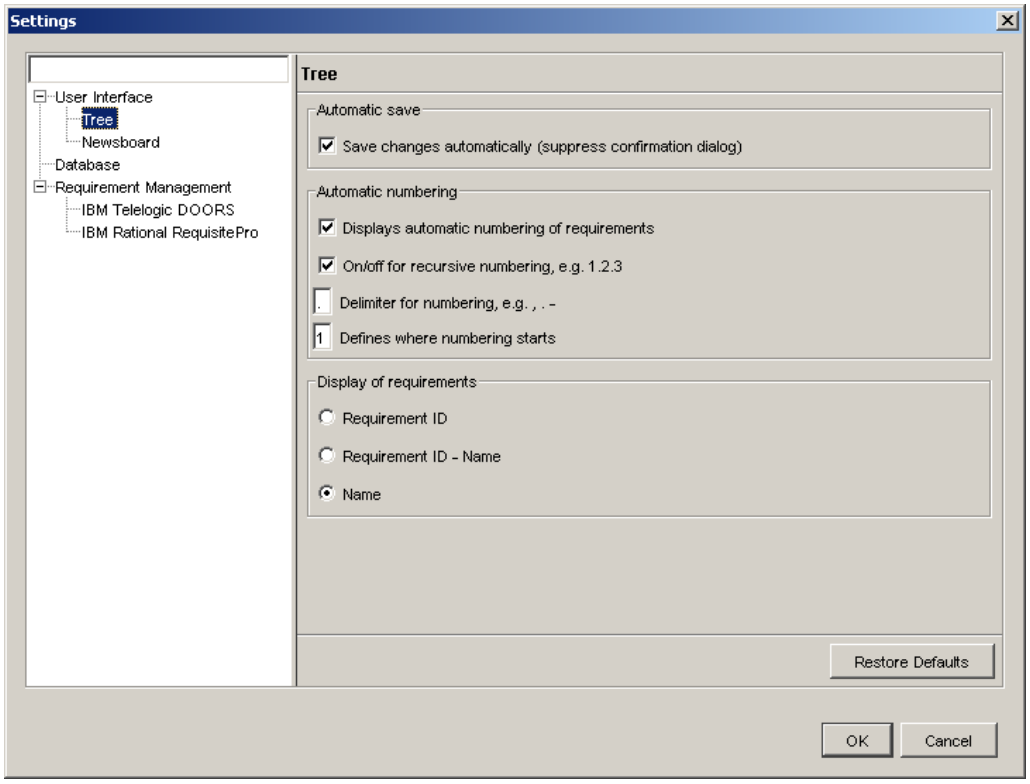


Figure 116 - Settings

Via button **Restore Defaults** all settings of the selected setting group are restored to the default values.

Following settings can be configured in TEMPPO Requirement Manager:

- User Interface
  - Tree
  - Newsboard
- Database settings
- Requirement Management
  - IBM Telelogic DOORS
  - IBM Rational RequisitePro

For user interface, database and notification settings please refer to /1/ - chapter Settings.

2.17.5.3 Requirement Management

2.17.5.3.1 IBM Telelogic DOORS

The user, password, path to the local DOORS and a parameter can be edited.

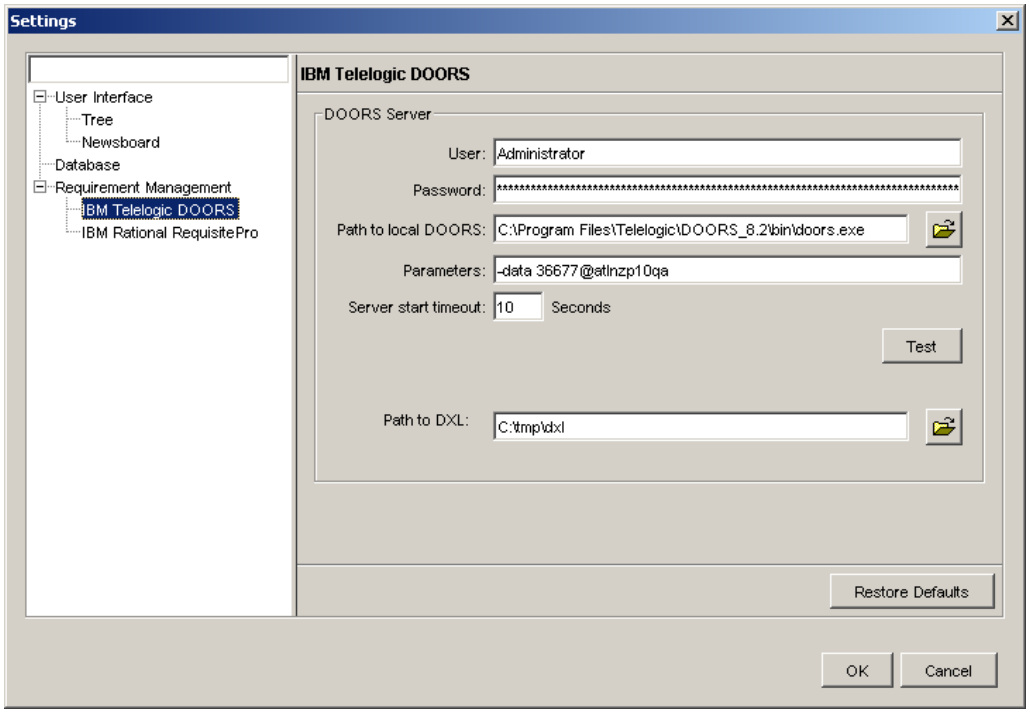


Figure 117 - Settings: Telelogic DOORS

User, password and DOORS path are needed for the start of connection to the DOORS server (see chapter 2.5.1).

With the field Parameters you specify e.g. the database connection as DOORS command line parameter:

Switch	Parameter	Description
-data	port@server	Specifies which DOORS database to use. The parameter specifies the port that the server is using and the name of the server computer (for example, 36677@myserver). Note that a DOORS 8.2 client can't use a pre-8.0 database server.

The path to DXL defines, where TEMPPO copies DXL scripts needed for the DOORS communication.

2.17.5.3.2 IBM Rational RequisitePro

The version of RequisitePro can be changed here.

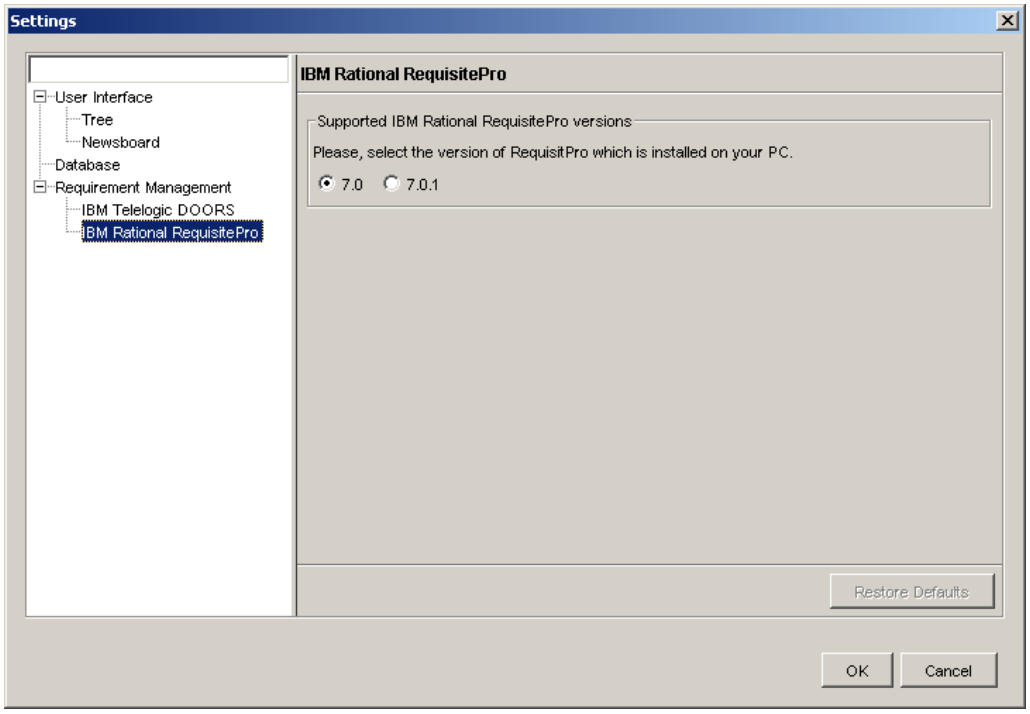


Figure 118 – Settings: RequisitePro

- Use Case "RequisitePro" is already installed
  If "RequisitePro" is already installed and TEMPPO is just installed, TEMPPO gets the RequisitePro version from MS Windows registry and stores it. In case of a not supported RequisitePro version, the last supported one will be stored.
- Use Case "TEMPPO" is installed and "RequisitePro" is updated
  If you update "RequisitePro" to a new version, you have to change the version in settings dialog (see Figure 118). Afterwards all TEMPPO applications have to be closed and a batch file (changeReqProVersion.bat) has to be executed.

3 Literature

/1/ User Manual
TEMPPO user manual
December 2012

4 Abbreviations

DB	Database
HW	Hardware
RM	Requirement Management
GUI	Graphical User Interface
SW	Software
DSN	Data Source Name
ODBC	Open Database Connectivity
UAI	Universal Automation Interface

5 Appendix

5.1 DTD-Schema for XML-Import (Requirement Structure)

See XML directory of TEMPPO's installation directory.

6 Index

A

Apply 68

C

CSV
- Import 11
- Import example 13
- Update 31

D

Discard 68
DOORS
- Attributes 17
- Baseline 16
- Import 15
- Module 16
- Requirement ID mapping 17
- Update 27
- View 16

E

Evaluation
- Analysis 56
- Progress chart 58

F

Filter 48
- Change 51
- Create 49
- Define criterion 53
- Delete 52
- Export 55
- Import 56
- Select 52
- Show 52

Find and Replace 69
- Find 71
- Replace 71

H

Hyperlink
- Create 65
- Download 68
- Edit 68
- Remove 68

Hyperlinks 65

M

Multi user 59
- Lock 59

N

Newsboard 41

R

Refresh
- Recursively 62
- Whole requirement structure 61

Requirement
- Edit 14
- Link 40
- New 8
- Tab "Attributes" 9
- Tab "General" 9

Requirement structure
- Assign attribute 38
- Import 14
- Split 47

Requirement Structure 5
- Assign 39
- Check in 43
- Create 6
- Export XML 37
- Import from DOORS 15
- Import XML 24
- Open 7
- Update 27

RequisitePro
- Import 21
- Project 23
- Update 30
- View 23

T

Task List 36
Test Structure
- apply requirement updates 32

V

Version 43
- Delete 47
- Merge 47
- View 44

View 44

X

XML
- Import 24
- Update 32